COMMUNICATIONS EQUIPMENT CATALOG SPRING/SUMMER 2015





# COMMUNICATIONS-GRADE SWITCHING POWER SUPPLY WITH USB PORTS

Visit alinco.com for more details!



## SPECIFICATIONS DM-330FXT

Input voltage	120 VAC(DM-330FXT)
Output voltage	9~15VDC variable
Output voltage variation	Less than 3%
Protection	Short-circuit, Automatic current limiting over 30A Over-temperature
Output current	30 A (max), 25 A (continuous)
Ripple	Less than 50mVp-p at rated load
Fuse	4A (FXE), 8A (FXT)
Meter	Selectable Volt / Current meter, back-lit
Size	190(W)×69(H)×181(D)mm (Projections not included)
Weight	Approx. 2.5 kgs with detachable AC cord

Specifications subject to change without notice or obligation.

This "Breakthrough" switching power supply packs a lot of features into a compact, lightweight design that features 9-15VDC variable output and delivers up to 25 amps, 30 peak. Unlike other "switchers", it's electrically quiet. But if you should find noise, don't worry! The patented Noise Offset Circuit lets you move the switching noise you might find to another frequency. Other features include a large illuminated "instrument-class" Volt/Amp meter, rear panel binding posts (30A peak), front panel cigar outlet (10A), two pairs of snap-in terminals (5A max.) and USB ports (2A max.), front panel voltage adjust, customer-defined output voltage "memory", ripple less than 50mV p-p and triple circuit protection for short-circuit, over temperature, and current limiting!

# Amazing high performance, compact size, and full featured!



- High power Li-lon battery pack, stand charger and beltclip included
- Output Power 5 / 2.5 / 1W selectable
- Large, dot-matrix, 3 color-selectable display and keypad
- Semi-Duplex dualband, V/V-U/U and FM broadcast receiver
- 200 memory channels, any mix of VHF/UHF
- RX Frequency Coverage 76-108 / 136-174 / 400-480MHz
- Alphanumeric channel labels
- Direct frequency input from keypad
- Landmobile-grade signaling features
- Variety of scanning modes
- IP54 dust/splash proof, MILSPEC vibration/shock compliant
- Wide and narrow FM TX/RX
- 12Vdc input using an optional cigar-socket adapter.
- Internal VOX and Wire cloning capability

### SPECIFICATIONS

T-version : RX Freq.	136-174MHz / 400-480MHz (76-108MHz WFM)
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TX Freq.	144-148MHz / 420-450MHz
E-version : TX/RX	144-146MHz / 430-440MHz (RX 76-108MHz WFM)
Modulation	F3E (FM)
Power output	Approx. 5, 2.5, 1W
Receiver system	Direct-conversion
Sensitivity	Wide -12dBu , Narrow -9dBu
AF output	1W (10% distortion)
Frequency stability	± 2.5ppm
Dimensions	59.0W×98.0H×35.0D mm or 2.32W×3.86H×1.38D inches w/o projection
Weight	Approx. 227g or 8.01 oz; includes antenna and battery pack
Temp. range	-20℃~+55℃ (-4F°~+131F°)

### REMTronix, Inc.

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<sup>\*</sup> USB ports may not work for charging cell-phones/mobile phones due to special charging circuits of those devices.



## **Base Transceivers**



## All-Mode TRANSCEIVER Analog / Digital Hybrid DX-SR9T - \$Call

150 kHz - 30 MHz

This hybrid, stand-alone analog and digital SDR transceiver covers all short-wave and HF amateur bands allocated to North America. Covers 160 m to 10 m amateur bands including 5.3 MHz in SSB, CW, AM, FM and IQ output modes. Output power is 100W SSB/ CW and FM, 40 W in AM with low and superlow power settings for QRP operation. In addition, the general coverage receiver covers 135 KHz to 30 MHz in all modes.

### Features include:

- · Front panel separation.
- · Large LCD display.
- · Front facing speaker.
- · Auto-keyer.
- · Simple operating commands.
- · Download free SDR software from Alinco. com. Programming cable ERW-4C or ERW-7 required for SDR operation.

## All Mode TRANSCEIVER DX-SR8T - \$Call

150 kHz - 30 MHz

## SSB/CW/AM/FM

The DX-SR8T covers 160 m to 10 m amateur bands including 5.3 MHz in SSB, CW, AM and FM modes. Output power is 100 W SSB / CW / FM and 40 W in AM with low and super-low power settings for QRP operation. General coverage receiver of all modes 135 kHz to 30 MHz. Receiver features are similar to the DX-R8T.

> Extended **Warranties** Available for Alinco Radios. See page 41.

## **Desktop Receiver**



## All Mode RECEIVER DX-R8T - \$Call

### 150 kHz - 30 MHz SSB/CW/AM/FM/IQ

Monitor SWL signals from aviation, navigation and data sources

- · IQ signal output allows use of third-party SDR software.
- · Front and rear jacks.
- · Direct frequency input to the dual VFO system.
- · Detachable front control panel mounting options.
- · Large LCD display.
- · Front speaker and 2 W audio output.
- · Rugged die cast chassis.
- Narrow ceramic filters (AM 2.4 kHz, SSB 1 kHz) and 0.5 kHz audio filtering for CW.
- · 4-level RF amp / attenuator.
- · IF shift and RIT.
- · Noise blanker.
- 3 banks / 600 memory channels.
- · Two sets of programmed search pairs and varieties of scanning modes.
- · Auto power off, sleep timer, dial and key locks, RX indicator illumination.
- · Computer utility software to manage settings and edit memories.
- · Receive circuitry: Double conversion superheterodyne.
- · Receiver current drain: 1.0 A.
- · RIT range: ±1.2 kHz.
- IF Frequency: 1st 71.75 MHz, 2nd 455 kHz.
- · Spurious and image rejection ratio: more than 70 dB.
- · Antenna impedance: 50 ohm unbalanced.
- Frequency stability: ± 1 ppm.
- Power required: 13.8 VDC ± 15%.

### **EDS-17**

Front panel remote kit optional. 5 m cable, front panel bracket, unit cover and hardware.

## Handheld Receiver

## Wide Band Receiver DJ-X11T

\$Call - HRO Price

Get the power of a desktop receiver in a handheld!! Features: 2 VFO simultaneous receive; covers 0.05 to 1299.995 MHz\* in all modes; 1200 memories; sub-band coverage VHF 118-171 MHz and 336 to 470 MHz in AM / NFM; IQ signal can be used with 3rd party software and discriminator output; easy-to-use twin dials; selectable tuning steps; 3 selectable scan speeds; freeware to operate as a software defined radio.

\*Cell band blocked



## **CONTENTS Amateur Radios** 3-24SWL & SDR **GPS & Scanners** 25-29 Packet Radio Control **Programming** Digital Sound 30-37 Mics & Keyers Radio Mounts 38-45 **Books & Software** 46-50 Amps, Meters & Analyzers **Power Supplies** Antenna Tuners 76-80 Antenna Switches

Coax & Baluns 80-84

**Amateur Antennas** 85-102

**Towers & Rotators** 102-109

**Store Locations** 112-113

## **Complete Index**

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## **MOBILE RADIOS**

## 28 MHz All Mode Mobile



28 MHz All Mode **TRANSCEIVER** DX-10 - \$Call

28 - 29.7 MHz SSB / CW AM/FM

The DX-10 has a large back-lit display, excellent transmit / receive audio. SSB modes. 6 banks with up to 60 channels of memories each, dual-watch, scanning, SWR meter, and key-

- · Operating modes: SSB, CW, AM, FM.
- Frequency resolution: 10 Hz, 100 HZ, 1 kHz, 10 kHz.
- Up to 60 channels per bank, 6 banks.
- Frequency stability: ±1ppm.
- · Voltage: 11.7 to 15.8V.
- · Power Output: 1-12W adjustable FM / AM / CW. SSB 0-25 W adjustable.
- 0.25  $\mu$ V, AM 2  $\mu$ V, FM 0.5
- Audio output: 3 W at 8Ω.

- Sensitivity: SSB 1 μV, CW

## **Dual Band Mobile**



Dual Band 2 m / 70 cm

DR-635T - \$Call

This mobile / base VHF+UHF transceiver has an expanded range receiver.

- VHF output: 50 / 25 / 5 W; UHF 35 / 20 / 5 W
- 200 memories
- · Cross-band repeater func-
- · Large, 6 character alphanumeric display with selectable color illumination.
- · Removable control head.
- · Internal duplexer.

- · CTCSS and DCS encode / decode plus four tone bursts.
- · CTCSS tone and DCS scan.
- · Optional 1200 / 9600 bps packet (EJ-50U).
- · Programmable VFO and memory scan modes.
- · Air band reception.
- · Receive frequencies: 87.5-107.995, 108-173.995, 335-479.995 MHz.

## **Extended Warranties Available**

## **Alinco Mobile Specifications**

### Current Current Primary Frequency Memory Ant Z Mike Z Sensitivity Height Width Depth Weight Model Power Power Out Drain Drain Use Range Channels at 12 dB **Xmit** Mobile 13.8 VDC 11 A 400 mA 5/10/50 W 100 50 600 <.16 µV 1.57 5.58 6.83 2.2 DR-135TMKIII# DR-235TMKIII# 13.8 VDC 400 mA Mobile 222-225 MHz 8 A 5/10/25 W 100 50 600 <.16 µV 1.57 5.58 6.83 2.2 DR-435TMKIII# <.16 µV Mobile 430-450 MHz 13.8 VDC 10 A 400 mA 5/10/35 W 100 50 600 1.57 5.58 6.83 2.2 DR-06T Mobile 50-53.995 MHz 13.8 VDC 11 A 600 mA 50 W 100 50 600 <.25 µV 1.57 5.58 6.83 2.2 DR-635T 50 W/35 W Mobile 2 m / 70 cm 13.8 VDC 11 A 1.2 A 50 50 600 <.16 µV 1.6 5.6 7 2.43 DR-638T Mobile 2 m / 70 cm 13.8 VDC 11 A 500 mA 5 /10/25/50 758 50 600 <.25 µV 1.6 5.5 8.35 3.3 DR-B185TH Mobile 2 m 13.8 VDC 6 A / 20 A 500 mA 5 / 65-85 600 <.25 µV 1.7 6.44 7.21 3.3

## **Single Band Mobiles**



**DR-B185HT** 2 Meters / 85 Watts \$Call - HRO Price

The compact DR-B185 is loaded with high tech features: high stability PLL

synthesizer, 85 W max output, 7-digit alphanumeric display, and a wide variety of scanning features. Yet the operation is intuitive and simple.

- TX 144-147.995 MHz; RX 136-173.995 MHz.
- · Scanning functions include DCS / CTCSS / priority / group and timer / busy modes.
- Wide and narrow FM modes
- · 39 tone CTCSS / DCS / 2-tone encode and decode.
- · High / low power setting.
- · Offset direction and frequency vari-
- Keypad lockout / reverse function.
- Alphanumeric tag / display dimmer.
- Automatic illumination brightness.
- Time out timer.
- BCLO and auto power off.
- · Tone-burst tones / auto-dialer.
- · DTMF TX speed, pause and monitoring features.
- S-METER squelch.
- · Multifunctional microphone with keypads.



DR-06T 6 Meters \$Call - HRO Prices

Catch the exciting world of the 6 m band with the DR-06T. Covering 50-53.995 MHz with an output of 50 W, it has convenient scan features, a variety of selective calling tones, theft alarm, ignition key on/off, direct frequency input, and controls from the EMS57 key pad microphone.



## DR-435TMKIII 440 MHz DR-235TMKIII 220 MHz

\$Call - HRO Prices

Features a unique multifunction backlit microphone with direct frequency input. The 144 MHz, 220 MHz, and 440 MHz models accept optional EJ-41U internal TNC or EJ-47U digital voice module. The MKIII TCXO supports a specification of  $\pm 2.5$  ppm frequency stability.



## DR-135TMKIII 2 Meters

\$Call - HRO Price

2 meter FM and Airband receive (AM). Ignition key power control, theft alarm, 7 place alphanumeric display, front panel data input, optional internal packet module to use with APRS®, rear panel serial port connection, 100 memories. 10 autodial memories.

Expand to 100 with optional EJ-19U †Expand to 240 with optional EJ-23U #TXCO with ± 2.5ppm frequency stability.

## **HANDHELDS**

## **COMMERCIAL RADIOS**

## **Single Band HTs**



DJ-V27T - 220 MHz \$Call - HRO Prices

This compact, full-powered FM HT is submersible to 3 ft for 30 minutes. It is perfect for outdoor activities. Input frequencies directly from keypad. 200 memories plus one call channel. 39 CTCSS encode-decode settings. Digital coded squelch.

## **Dual Band HT**

## Dual Band 2 m / 70 cm

DJ-500T \$Call - HRO Price

The DJ-500T provides landmobile-grade operation with 5 Watts output, CTCSS, DTMF, DCS and 5 tones as standard features. Includes direct frequency input, alphanumeric channel labels, 200 memory channels, dot-matrix with 3 color selectable display. Li-lon battery and stand charger standard.



## **Tri-Band HT**



## 2 m / 70 cm / 1.2 GHz DJ-G7T

\$Call - HRO Price

The DJ-G7T tunes 0.531-1300 MHz\* continuously. Full duplex receive with 144 / 430 / 1200 MHz bands. AM and WFM modes allow you to hear aviation and broadcast bands. Scan modes and options include 50 pairs of programmable scan memories. Timing adjustable priority scanning and Alinco's Channel-Scope — visualize the presence of radio signals on the display. Output power up to 5 Watts on 2 m. \*Cell band blocked.

**Commercial HTs** 



The tiny DJ-A11 and DJ-A41 measure only 2.3 x 3.85 x 1.4 inches (with battery pack). They are fully PC programmable/cloneable. There are up to 128 programmable channels in 8 groups with 16 channels in each group. Features like CTCSS/DCS/DTMF signaling, alert tones, voice-compander, channel knob lock, narrow bandwidth, BCLO, TOT, VOX, scans, priority monitoring and more are all standard.

- Frequency coverage: [A11] 136-174 MHz, [A41] 400-470 MHz.
- · Output power: approx. 5 / 2 / 0.5 W.
- Comes with a rechargeable Li-lon pack, desktop quick-charger and high-performance whip antenna.
- · Scan channels / priority.
- 50 CTCSS and 116 DCS.
- · External microphone and speaker ports
- Internal VOX.
- · Narrow FM.
- Auto-power-off, busy channel lockout, time-out timer.

Extended Warranties Available for Alinco. See Page 41.

## **Commercial Mobile**



## Analog Dual Band 2 m / 70 cm

DR-638T - \$Call

With full duplex capability, cross-band repeat and a remotely mountable control head, the DR-638 is a solid performer for base or mobile operation. The large, 6 character alphanumeric display features variable colors for custom illumination. Ignition key on/off feature, theft alarm, extended receive capabilities, a variety of signaling and scan modes are also included. The backlit, DTMF microphone EMS-77 allows remote control of the transceiver.

- 758 channels programmable.
- H / M / L power output settings: VHF– 50 W / 25 W / 10 W / 5 W; UHF– 40 W / 25 W / 10 W / 5 W.
- · Inversion scrambling.
- Internal duplexer single antenna connector.
- Removable control head can be remotely mounted or inverted for optimal speaker placement.
- Expanded receive range includes AM civil aviation band.
- · Crossband repeat.
- CTCSS, DCS, tone-burst tones, 2-tone and 5-tone signaling.
- · CTCSS tone and DCS scan.
- Variety of scan modes and priority channel monitoring.
- TOT, BCLO, talk around, reverse and
- · Utility software and cable cloning.
- Ignition key activated power on/off feature

## **Alinco Handheld Specifications**

Model	Frequency Range	Power	Current Drain Xmit	Current Drain Rec	Power Out **	Memory Channels	Ant Z ohms	Mike Z ohms	Sensitivity at 12 dB	Height in	Width in	Depth in	Weight lbs
DJ-175T	2 m / 70 cm	3-7.6VDC	320 mA	70 mA	300 mW *	200	50	2k	<.15 µV	3.7	2.2	0.57	0.23
DJ-500T	2 m / 70 cm	7.4 VDC	1400 mA	70 mA	5 W	200	50	2k		3.86	2.32	1.38	0.5
DJ-A11T	2 m	7.4 VDC	1400 mA	300 mA	.5/2/5	128	50	2k	<.25 µV	3.9	2.32	1.4	0.5
DJ-G7T	2 m/70 cm 1240-1299.995	7.4 VDC	1.6 A	200mA	5 W †	1000	50	2k	<.15 µV	4.53	2.36	1.18	0.6
DJ-V27T	222-224.995 MHz	7.2 VDC	1.4 A	251 mA	6 W	200	50	2K	<.2 µV	4.33	2.28	1.43	0.61

<sup>\*\*</sup> Power output is determined by choice of battery pack

†at 13.8VDC

\* 500mW with 6 VDC #5W 220, 2.5 912MHz

## **DUAL BAND RADIOS**

## **Commercial Radios**



### Commercial Mobile Radio

All of the features you want in a commercial mobile at an affordable price. Ideal for fire, police, FEMA, CAP, security patrols, business communications, schools, construction crews, universities, and other organizations that have FCC licensed frequencies. Includes 2.5 kHz channel step for FCC 2013 narrowband compliance.

The radio features narrow band transmit (2.5 kHz) except on the Amateur bands (selectable wide or narrow RX), true dual-band receive (V+V, U+U, V+U, U+V), wide RX / TX 136-174 / 400-490 MHz, AM aircraft receive 108-136 MHz, and user selectable multi-colored LCD display.

Since this is a Commercial Land Mobile Multi-band radio, the DB-750X ships keyboard locked. The RPS-DB750X-USB programming software kit is required to initially unlock and program this radio before use.

- · 750 memory channels.
- 10 memory banks (with bank linking).
- 7 character alphanumeric display.
- Dual receive operation.
- Wide band (5.0 kHz) operation for Amateur frequencies.
- Narrow band (2.5 kHz) operation for land mobile frequencies (FCC Part 90).
- User selectable multi-colored LCD display.
- Built-in CTCSS / DCS per channel





KG-UV6X
Commercial
Dual Band VHF / UHF

The KG-UV6X is a compact, high-performance dual band handheld commercial transceiver providing up to 5 Watts of RF power on VHF and 4 Watts on UHF, along with high audio output (500 mW).

It is ideal for Fire, Police, FEMA, CAP, security patrols, business communications, schools, construction crews, universities, and other organizations that have FCC licensed frequencies. 2.5 step for FCC narrowband compliance. FCC Part 90 certified.

Frequency Range is 136-174, 375-512 MHz, FM: 76-108 MHz (RX), 136-174, 406-512 (TX).

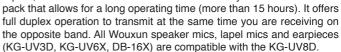
The KG-UV6X features a long operating time (about 16 hours), thanks to the standard extended life 1700 mAh high capacity Li-ion battery pack.

## **Amateur Dual-Band HT**



## KG-UV8D VHF / UHF Dual Band 2 m / 70 cm

Dual band 2 m / 440 MHz with true simultaneous dual receive (V+V, U+U, V+U). It features a large LCD color display, 999 memory channels, cross band repeat, and an extended-life 1700 mAh Li-ion battery



- Receive frequency range: VHF, 136-174 MHz; UHF, 400-480 MHz.
- Output power: VHF- 5 W high / 1 W low; UHF- 4 W high / 1 W low.
- Wide / narrow bandwidth selection (25 or 12.5 kHz).
- · 2.5 channel step.
- Multiple scan modes including priority scan.
- · CTCSS encode/decode.
- 105 groups DCS / 50 groups CTCSS.
- · 16-Key DTMF encoding
- Stopwatch function.SOS function.
- · VOX function.

- High contrast white backlit keypad.
- · IP55 water resistant rating.
- Standard SMA antenna connector.
- · Heavy duty belt clip.
- Includes Li-Ion battery and desk charger not interchangeable with previous Wouxun models.
- Digital FM radio (76-108 MHz) with automatic tuning and storing, radio frequency display, 18 FM memories in 2 banks.
- Windows PC programmable with optional cable WXUSB.
- Radio to radio cloning with optional cable WXCLN.

### **Wouxun Accessories**

Model	Description	<b>HRO Price</b>
WXHCB	1700 Li-ion Battery	\$28.99
WXAAB	AA Battery Pack	\$11.99
WXUSB	USB Programming Cable	\$16.99
WXDSC	Dual Slot Charger w/ 2nd Battery Slot	\$24.99
WXSPK	Economy Speaker Mic	\$16.95
WXLOE	Listen Only Earpiece for Speaker Mics	\$12.99
WXGHK	G-Hook Lapel Mic	\$18.99
WXAET	Covert Clear Acoustic Earphone Mic	\$19.99
WXCHD	Heavy Duty Nylon Case	\$22.99
WXCAR	12 VDC Car Charger	\$9.99
WXBTE	Battery Eliminator w/Cig Lighter	\$14.99
WXRC6	6-Unit Drop-in Rapid Charger	\$149.99
WXGAT-RV	High Gain 2m/440 Antenna (Rev SMA)	\$22.99
WXGAT-ST	High Gain 2m/440 Antenna (Std SMA)	\$22.99
WXSTB-RV	Dual band Stubby Antenna (Rev SMA)	\$19.99
WXSTB-S155	Dual band Stubby Antenna (Std SMA)	\$18.99
WXUHF	Reverse SMA to UHF (SO-239)	\$6.99
WXBNC	Reverse SMA to BNC	\$6.95
RPS-KGUV8	RT Systems Software & Cable (8D)	\$49.95
CSC-8	Heavy Duty Nylon Case for KH-UV8D	\$29.99
RPS-KGUV23	RT Systems Software & Cable (3D)	\$49.95
RPS-KGUV6	RT Systems Software & Cable (6x)	\$49.95



## **HF RIGS**





## IC-7600 The Flagship's Lineage



The IC-7600 pushes performance to the pinnacle with the latest DSP technologies developed for the IC-7800 / 7700. More than 45 years of analog circuit expertise gives the IC-7600 the performance advantage. Supplied with DC power cable, HM-36 hand mic, spare fuses, MB-121 handle, and CW key plug.

- Dual DSP units for transmitter / receiver and high resolution real time spectrum scope.
- · 2-100 W output with 1-30 W on AM.
- · Built-in high speed auto antenna tuner.
- · Receives 0.030 60 MHz.
- Transmits on amateur HF frequencies plus 6 meters.
- Three built-in 1st IF (roofing) filters: 3, 6, and 15 kHz.
- 5.8 inch WQVGA (400 x 240 pixel) TFT display with LED backlighting.
- · Front & rear USB connectors.
- Built-in PSK and RTTY operation with a USB keyboard. A PC is not required.
- 104 dB dynamic range and +30 dBm third-order intercept point.
- Double conversion superheterodyne receiver greatly improves inband IMD.
- Dual AGC loops (one analog, one digital) controlled by the DSP.
- · Adjustable digital IF filter.
- 99 memories and 2 scan edges.
- Noise reduction / noise blanker.
- · Digital notch filter.

- Digital twin PBT to shift and narrow the IF passband.
- Dual watch for simultaneous reception of two signals in the same band.
- High stability TCXO unit with ±0.5 ppm frequency stability.
- Digital voice memory to record and replay incoming signals.
- 4-channel transmit memory and 20-channel receive memory.
- · Multi-function meter.
- · RF speech compressor.
- · Triple band stacking register.
- · Programmable band edge beep.
- · Built-in memory keyer.
- Microphone equalizer and adjustable transmit bandwidth.
- Two TX / RX antenna connectors with automatic antenna selector.
- Built-in 3-step attenuator and two types of RX preamps.
- 50 CTCSS tone encoder and VOX.
- RIT & delta TX variable up to  $\pm 9.999$  kHz.
- · IF-DSP.
- · USB audio / control.





## Contester's Rig

The Contester's rig has two 32-bit floating point DSP units – one for the transmitter / receiver and the other for the spectrum scope. There is a +40 dBm 3rd order intercept point and ultra wide dynamic range. Two IF stages and Icom's image rejection technology allow very weak signals and very strong signals to be heard without distortion.

- · Spectrum waterfall display.
- · Real time spectrum scope.
- · PC mouse operates spectrum scope.
- · Audio scope function.
- 7" wide color TFT LCD.
- Waveform outline in spectrum scope (ON / OFF).
- Remote control operation for RS-BA1.
- TX delay sets the transmission timing to control an attached external linear amp.
- Added RIT and atX commands for CI-V remote control.
- · Internal distortion reduction.
- · Improved blocking.
- · Icom's DIGI-SEL.
- · Less internal phase noise.
- Multiple AGC loops; full control.

- Digital IF filters / twin passband tuning.
- · Three roofing filters.
- · Digital manual notch filter.
- · Adjustable noise blanker.
- Ultra high stability OCXO unit.
- CW / RTTY / PSK31 operation.
- 200 W power out at full duty cycle.
- 50 MHz band preamp & mixer.
- · Microphone equalizer.
- · RF speech compressor.
- · Digital voice recorder.
- · Increase APF volume level.
- Voice TX function transmits the recorded audio repeatedly.
- · CF memory card.
- 4 antenna connectors.
- · Double conversion super-heterodyne.

## The Pinnacle of HF Perfection





# HF Plus 6m

The IC-7851 perfects HF operation with new features such as a 1.2 kHz optimized roofing filter to improve in-band adjacent signal performance. The new design outperforms competitors' similar models in the 2 to 10 kHz separation tests.

Unlike HF rigs that use a conventional voltage controlled oscillator for the 1st LO, the IC-7851 employs a direct digital synthesizer (DDS) with a voltage controlled SAW oscillator (VCSO). This new 1st LO design sets a new benchmark for phase noise with -150 dBc / Hz at 10 kHz offset (and -140 dBc / Hz at 1 kHz offset).

The IC-7851 also has the spectrum waterfall function found in the IC-7700. The high-resolution waterfall screen shows the changing amplitude of frequencies over time. An enhanced spectrum scope promotes fast and accurate scan and can be operated with PC mouse via USB port. Dual scope function shows simultaneous activity in both bands to help search a sub-band while maintaining a run frequency on the main band.



## All-Band HF IC-718

- Receives 0.03 ~ 29.995 MHz.
- Transmits HF amateur bands except 60 m.
- Output power: SSB / CW / RTTY: 5 ~ 100
   W variable, AM: 2 ~ 40 W variable.
- 101 memory channels.
- Modes USB, LSB, CW, RTTY, AM.
- IF shift interference rejection.
- AF DSP built-in.
- Built-in electronic keyer
- VOX operation, mike compressor, RF gain control.
- 10-key pad for direct operating frequency entering and memory channel selection.

Extended Warranties Available for Icom. See Page 41.

## HF + 6m Base Rigs



## HF Plus 6 m All-Mode

### IC-7410

- · Faster DSP and AD / DA converter for higher dynamic range and S/N ratio.
- Double conversion superheterodyne.
- +30 dBm 3rd order intercept point.
- 3 first IF filters. FL-431 and FL-430 op-
- Large, multi-functional LCD.

- · USB connector for PC control.
- · RTTY demodulator and decoder.
- · Simple band scope.
- · Many DSP features.
- · Ample CW functions.
- · High frequency stability.
- · Large heat sink.
- · USB Audio/Control.
- IF-DSP.



## IC-7200 HF Plus 6 m

Shown with optional handles

The simple, tough IC-7200 uses the latest IF DSP technology. Distortion and blocking from strong nearby signals are prevented by placing DSP functions inside the AGC loop. The built-in digital filter eliminates the need for optional CW and SSB filters.

Features digital twin PBT, manual notch filter, digital noise reduction, and digital noise blanker. The direct digital synthesizer (DDS) creates a clear, clean transmit signal.

The rig has a USB port for PC control, RF speech compressor, full break-in for CW, selectable CW carrier point, adjustable CW pitch, RIT, VOX, backlight LCD display, CI-V interface, 201 memory channels, preamplifier, band stacking register, built-in voice synthesizer and built-in 20 dB attenuator, USB Audio/Control, IF-DSP.

## Icom HF Specifications

## **Dual Band Mobile**

## IC-2730A **Practical Dual Bander**

## with Optional Bluetooth Headset

This mobile is a high performance radio with classic 2 m / 70 cm analog operation.

- Wideband receiver 118-174 / 375-550 MHz.
- · Large backlit LCD screen.
- V/V & U/U simultaneous receive.
- · Hands-free capable with optional UT-
- · Optional VS-3 Bluetooth® headset.
- · Cross band repeater capability.
- CS-2730 free download PC programming software.
- 50 Watts of output on VHF and UHF.
- Built-in 50 CTCSS and 104 DTCS tones with split tone function.
- Controller attachment to the main unit (with optional MBA-4).
- 1052 memory channels including 50 scan edges and 2 call.
- Weather channel receive with weather alert (USA version only).
- Squelch delay and squelch attenuator.
- HM-207 remote control mic is standard.
- 16 DTMF autodial memories.
- CI-V remote control capability (through the optional OPC-478UC).

## 2 m Mobiles



The IC-2300 2m mobile transceiver boasts a powerful 65 W output, simple-to-use user interface, and built-in CTCSS / DTCS encoder / decoder.

- · Simple operation with a large tuning dial.
- · 207 alphanumeric memory channels.
- · Dynamic memory scan allows scanning of selected memory banks.
- Pocket beep function for incoming calls.
- DTMF autodial.
- Select vellow, green or amber display.
- PC to XCVR and XCVR to XCVR cloning (optional software and cable required).
- Automatic repeater function and weather channel (USA only).
- Power supply voltage display, time-out timer, repeater lock out, auto power off.
- Selectable squelch delay and squelch attenuator.
- Wide / narrow channel setting.
- Passed MIL-STD 810G specifications.



## IC-V8000

## 75 Watts of power for your ultimate 2 m mobile experience

This one piece, die-cast aluminum chassis with 75 W of transmit power givs you the most powerful 2 m mobile transceiver in its class.

- · Control rig with included HM-133 mike.
- · Easy operation with quick reference userdefined memory channel information.
- 6 character alphanumeric display.
- · CTCSS & DTCS are standard.
- · Front firing speaker.
- FM narrow mode switchable.
- DTMF encoder is standard with 10 channels with up to 24 digit DTMF codes.
- Optional UT-108 DTMF decode.
- Dynamic Memory Scan has 200 alphanumeric memories. DMS system allows customized scanning in 10 banks.
- Clone from a PC or between radios.
- Weather Alert Scan (US only).

					Pow	er Outp	ut†							
Model	Receive Freq Range	Power Supply	Current Drain Xmit	АМ	FM	SSB	cw	FSK	Mike Z ohms	Receive Circuitry	Sensitivity 1.8-30 MHz	RIT / XIT Range	Notch	Audio
IC-7100	30 kHz - 199.9999 MHz, 400 - 470 MHz	13.8 VDC	22A	1-40W	##	##	##	##	600	Triple Conversion	<.18µv at 10 dB	±9.9 kHz	Man + auto	>2.0 W
IC-7200	30 kHz - 60 MHz	13.8 VDC	22A	1-40W		100 W	100 W	100 W	600	Triple Conversion	<.16µv at 10 dB	±9.9 kHz	Manual	>2.0 W
IC-7410	30 kHz - 60 MHz	13.8 VDC	23A	2-27W	100	100	100		600	Double Conversion	<.16µv at 10 dB	±9.9 kHz	Man + auto	>2.0 W
IC-7600	30 kHz - 60 MHz	13.8 VDC	23A	1-30W	2-100	2-100	2-100	2-100	600	Double Conversion	<.15µv at 10 dB	±9.9 kHz	Man + auto	>2.0 W
IC-7700	30 kHz - 60 MHz	85-265VAC	5.6A	50W†	200†	200†	200†	200†	600	Double Conversion	<.16µv at 10 dB	±9.9 kHz	Man + auto	>2.6 W
IC-7851	30 kHz - 60 MHz	85-265VAC	5.6A	50W†	200†	200†	200†	200†	600	Double Conversion	<.16µv at 10 dB	±9.9 kHz	Man + auto	>2.0 W

<sup>†</sup> Output is continuously adjustable from 5 to full power.

## 2-100 W HF / 50 MHz, 2-50 W VHF, 2-35 W UHF.

<sup>\* 50</sup> W on 2 meters, 20 W 70cm.

## **HANDHELDS**

## **Dual Band Analog HT**

### IC-T70A-HD

The IC-T70A offers impressive audio output volume, long-lasting power, plenty of memory channels, rugged construction, and analog

features:

- TX: 2 m / 70 cm bands. RX: 136-174, 400-479 MHz (US version).
- Power out selectable 5 W / 2.5 W / 0.5 W.
- 700 mW loud audio.
- · Long lasting battery life. Up to 13.5 hours with supplied BP-265.
- · External DC power jack.
- · 302 alphanumeric memories including 50 band edges and 2 call channels. Maximum of 26 memory banks for scanning.
- Built-in CTCSS / DTCS.
- Internal VOX, WX channel, direct keypad frequency entry, 16 DTMF autodial memories.
- · IP54 / MIL-STD-810 rugged construction.

## 2 m Analog HT

## IC-V80 HD or IC-V80 Sport Basic Rugged 2 m with Powerful Audio

Available either as an economical 2 m HT with alkaline battery case (BP-263) or with BP-265 battery and drop-in charger.



Features include:

- IP54/MILSTD-810 rugged construction.
- 5.5 Watts out.
- Up to 19 hours operation with optional BP-265. 207 memory channels.
- Built-in CTCSS / DCS.
- Internal VOX function.
- WX channel.

**Extended Warranties** Available.

### **IC-T70A-HD Accessories**

Model	Description	HRO Price							
	Cloning								
CS-T70	Cloning software	\$39.95							
OPC-474	Radio to radio cloning cable	\$17.95							
OPC- 478UC	PC to radio programming cable, USB	\$60.95							
Headph	none / Microphone Acces	sories							
HS-94	Ear-hook headset w/flexible boom microphone	\$22.95							
HS-95	Behind-the-head								
HS-97	Throat microphone	\$35.95							
HM-131	Spkr Mic w/earphone jack & clip	\$37.95							
HM-153LS	Durable earphone microphone	\$135.95							
SP-27	Acoustic tube earphone	\$35.95							
	Other Accessories								
AD-92SMA	BNC antenna adapter	\$18.95							
OPC-2006	Cable to use with HS-94, -95, or-97	\$22.95							
OPC-254L	DC Power Cable	\$16.95							
OPC-515L	DC Power Cable (BC191, BC192, BC193)	\$20.95							
CP-12L	Cigarette lighter cable w/ noise filter	\$34.95							
FA-S270C	Antenna (same as supplied)	\$33.95							
MB-124	Alligator Belt Clip	\$10.95							

Icom	Handheld	2 m	DUAL	TRI	BAND	70 cn
Acc	essories	V80	ID- 51A	T70 HD	92 AD	ID- 31A
Battery	BP-256				+	
Packs	BP-264	•		•		
	BP-265	•				
	BP-271		•			
	BP-272		•			•
Battery	BP-263	•		•		
Cases	BP-273		•			•
	BP-257				•	
Carrying	LC-168				+	
Cases	LC-174			•		
	LC-178					•
	LC-179		•			
Cables	CP-12L		•	٠	•	
	CP-17L	+	Į.			
	CP-19R		•	•	•	•
	OPC-254L		•	•	•	•
	OPC-474	•			•	i.
	OPC-478/478U	+				
	OPC-515L	+		•		
	OPC-2004					
	OPC-2006LS		•			•
	OPC-2144		•			•
	OPC-1529R					
Speaker	HM-75A		•		<u> </u>	
Mics	HM-75LS		•			•
	HM-131			•		
	HM-153					
	HM-153L					•
	HM-153LS	_	•	•		•
	HM-158L-LG		İ	-		-
	HM-159L-LG	•				
	HM-166LS	-	•			•
	HM-174		-		•	-
	HM-175GPS				•	
	HM-186LS		•		-	٠
	HM-189GPS		-			_
Headsets	HS-85	•			•	
	HS-94	•	•	•	•	•
	HS-95	•	•	÷		•
	HS-97	•	•	•		•

## Handheld **Batteries &** Chargers

### "AA" Alkaline **Packs**

BP-204, BP-208N, BP-263, BP-273

- # Requires BC-147S AC adapter.
- Requires BC-123S AC adapter.

Model	Volts	Rating mAh	Trickle Charger	Rapid Charger		
BP-206	3.6	1650	BC-149A-02	BC-156-02		
<b>BP-210N</b>	7.2	1650	BC-146-01#	BC-144N		
BP-217	7.4	1500	BC-167SA	BC-139-02		
BP-222N	7.2	600	BC-146.01#	BC-144N		
BP-227	7.2	1700	BC-146-01#	BC-119N-51		
BP-256	7.4	1620	BC-167SA	BC-177-02		
BP-264	7.2	1400	BC-192-12#	BC-191-12*		
BP-265	7.4	1150		BC-193-12*		
BP-271	7.4	1150	BC-167SA	BC-202-02		
BP-272	7.4	1880	BC-167SA	BC-202-02		

## Icom Handhelds

Model	Frequency	Power Supply	Power Out Transmit*	Current Transmit	Drain Receive	Sensitivity at 12 dB	Height in(cm)	Width in(cm)	Depth in(cm)	Weight oz(g)	HRO Price
IC-T70HD	2m / 70 cm	7.2 VDC	5.0/2.5/.5 W	2.1 A	<450 mA	<.18µV	4.8(11.1)	2.3(5.8)	1.2(3.0)	13.4(380)	CALL
IC-V80	2m	7.2 VDC	5.5/2.0/.5 W	1.4 A	310 mA	<.14µV	4.4(11.2)	2.3(5.8)	1.2(3.0)	12.7(360)	CALL
ID-31A	70 cm	7.4 VDC	5.0 W	2.5 A	<450 mA	<.18µV	3.74 (9.5)	2.28(5.8)	1.0(2.54)	7.94(225)	CALL
ID-51A	2m / 70 cm	7.4 VDC	5.0 W	2.5 A	<450 mA	<.18µV	4.1 (10.5)	2.28(5.8)	1.0(2.6)	9.0(255)	CALL

<sup>\*</sup> Power with standard battery pack. † Frequency coverage 138-174 (receive only outside amateur bands), 440-450 MHz.

<sup>#</sup> Extended receive 118-174 MHz and 400-470 MHz. % 0.495-999.99 cellular blocked.

# ICOM<sup>®</sup>

## **D-STAR CENTRAL**

## **HF and More With D-Star**

HF Plus 6 m, VHF / UHF with D-STAR



- Intuitive touch screen interface
- Easy-to-see,easy-to-use slant top controller.
- Built-in high effeciency oval speaker on the controller.
- D-STAR DV mode digital voice and low speed data communications.
- · 505 memory channels.
- · SWR graphic display.
- Optional MBF-1 mounting base.
- Built-in SD card slot for voice storage and data cloning.

- Easy vehicle mounting (optional MBF-1).
- IF DSP controlled digital features. The 32-bit floating point DSP supports many digital processing features such as digital IF filter, twin PBT and manual notch filters.
- Remote Control Software (optional RS-BA1 IP).
- Built-in RTTY functions.
- · CW full break-in.
- · CW auto tuning.
- USB Audio/Control.
- · IF-DSP.



## VHF / UHF Satellite Plus HF / 6 m Plus D-STAR DV Mode

### IC-9100

With built-in satellite mode operation, the IC-9100 covers HF / 50 MHz, 144 / 430 (440) MHz, and 1200 MHz frequencies. The optional UX-9100 is required for 1200 MHz. The rig has 100 Watts output on HF / 50 / 144 MHz; 75 Watts on 430 (440) MHz; 10 Watts on 1200 MHz.

- Double superheterodyne receiver with image rejection mixer.
- SSB, CW, RTTY, AM, and (with the optional D-STAR unit) DV mode.
- 32-bit floating point DSP and 24-bit AD / DA converter.
- Optional 3 kHz (FL-431) and 6 kHz (FL-430) 1st IF (roofing) filters
- · USB Audio/Control. IF-DSP.

Extended Warranties Available for Icom. See Page 41.

## **D-Star Mobiles**

## ID-5100A Dual Band D-STAR with

### **Touch Screen**

This ID-5100A dual band D-STAR mobile has a large, responsive touch screen LCD and Bluetooth connectivity.



- Wideband receive (118-137 MHz (AM), 137-174 / 375-550 MHz only).
- Antenna RX diversity (second antenna connector).
- DTMF decode / DV / FM repeater list.
- Optional UT-133 Bluetooth unit enables audio accessory connection and Android terminal connection (CI-V via Bluetooth SPP profile).
- Optional VS-3 Bluetooth pendant earpiece mic.
- 1,000 memory channels.

- RS-MS1A Android application: a free-to-use download.
- Independent VHF and UHF band units (VV / UU capable) for 50 W output.
- D-Plus reflector usability (select "reflector" in TO field).
- DV dual watch for simultaneously waiting in two DV voice streams (decodes one only).
- Home button (same as ID-51 feature).
- Built-in GPS engine.
- HM-207 control microphone is supplied as standard.

### ID-880H

## **Dual Band D-STAR** with Magnet Mount Front Panel

D-STAR just keeps getting better and better and so does Icom's entry-level D-STAR dual band mobile, the ID-880H. An improved user interface, smart new look and free programming software are included. Comes with a magnet mount front panel like the IC-2820H. There are lots of signaling options too.

- Transmit 2 m / 70 cm.
- Receive 118 999.99 MHz (cellular blocked).
- TX Modes FM / DV.
- · RX Modes AM / FM / DV.
- DTMF codes.

- · 1052 Memory channels
- Output power 50 W on UHF and VHF.
- · 26 memory banks.
- Free programming software.
- V/U or U/V switchable operation.

## ID-1 Single Band 1.2 GHz also with Analog

While the ID-1 transceiver is a vital part of a D-STAR system, you won't have to wait for a new repeater to be set up in your area. This rugged little rig operates with current analog

1.2 GHz repeaters, plus simplex digital operation with another ID-1. Its operating frequency range is 1240-1300 MHz with FM and GMSK (Digital) modulation

formats. The ID-1 includes alphanumeric memory channels, CTCSS encode / decode and scanning, PLUS full PC control via the USB port (a black box 1.2 GHz radio!). Now for the fun part . . . the ID-1 supports a 10 BASE-T ethernet cable for the 128K data operation! Explore the benefits of wireless high-speed integrated digital connections!





## **D-STAR CENTRAL**

## D-Star Handhelds



## ID-51A Plus 2 m / 70 cm Handheld

The ID-51A is a compact, light weight handheld with 5 W output power, VHF / UHF dual band, D-STAR, and integrated GPS receiver.

- · Transmit 144-148 and 430-450 MHz.
- Receive A: 137-174: B: 108-174, 380-479 MHz.
- Broadcast band receive 0.52-1.710, 88-108 MHz.
- FM, AM, and shortwave can be listened to while using the dual watch function for ham bands.
- MicroSD card slot for voice and log data storage and data cloning.
- Voice memory records incoming and outgoing calls. Can be used as a voice recorder.
  - · CSV formatted communications log.
  - · 1304 memory channels.
  - Automatic position reply function transmits your current position when receiving a call.
  - · Send and receive pictures.
  - · Independent AM / FM receiver
  - · D-STAR DV mode.
  - V/V, U/U, V/U dual watch receives two bands simultaneously including the same band.
  - Speech function announces frequency, mode, and call sign.
  - Repeater search function searches up to 20 nearby repeater sites.
- GPS position data can be sent simultaneously. Altitude data added to GPS memories.
- · IPX7 submersible.

443,000

- · Integrated GPS receiver, GPS log function.
- · CTCSS and DTCS.
- · Improved data transfer in DV mode.
- RS-MS1AAndroid<sup>™</sup> application (optional OPC-2350LU cable required).
- · Additional dplus reflector link commands.
- · DV and FM repeater search function.
- Enhanced D-PRS functions: receiving only base / object / item / weather formats.
- CI-V commands can be sent through DATA connector.
- Callsign, repeater list and GPS memory import and export in the CSV format.
- CI-V commands added such as GPS TX mode, DV data TX, and GPS ON/OFF settings.
- · PC programmable. CS-51 cloning software supplied.
- · Full dot-matrix display and directional keypad.

## ID-31A 70 cm Handheld

- · 5 W output power.
- Lightweight, compact body.
- PC programmable. CS-31 cloning software supplied.
- Full dot-matrix display and directional keypad.
- IPX7 submersible construction.
- Built-in GPS receiver.
- Sixteen 24-digit DTMF memories.



- 1,252 memory channels. Name all memory banks with 16 character channel comments.
- · D-STAR digital voice mode.
- Automatic repeater list-up function; micro SD card slot.
- · Multiple scanning functions.
- Built-in CTCSS/DTCS encoder and decoder.
- Optional CT-17, CI-V for remote radio control.

Extended Warranties Available for Icom.

## **D-Star Audio**

**Works with PCs and Macs** 

## **INET Labs**



DV Dongle

The DV Dongle connects to your PC or Apple

Mac via a USB port and provides encoding and decoding of compressed audio using the DVSIAMBE2000 full duplex vocoder DSP chip.

AMBE technology is used in all D-Star radios to provide efficient voice transmissions. It is also used in some HF digital protocols by vendors like AOR.

The DVTool application used with the DV Dongle may be installed and run on Microsoft XP/Vista, Mac OS Leopard or many flavors of Linux. The unit includes a USB A to mini-N cable. PC and Mac users must download an FTDI USB

device driver. HRO Price \$199.95



DV-AP 440 now available for 440 MHz

The DV Access Point Dongle (DVAP) provides a way to connect to the international D-Star network. The DVAP is used with a PC or Mac and an internet connection.

You can walk away from the computer and transmit / receive D-Star voice and data using a 2 meter D-Star radio. It uses the computer's USB port and a PC running Windows XP / Vista / 7 / Linux or an Intel Mac running OS X. The DVAP is a GMSK modem with a 2 meter or 70 cm transceiver built in. The DVAP tunes between 144-148 MHz for IARU regions 2 and 3 and 144-146 for region 1.

HRO Price \$239.95 DV-AP 440 HRO Price \$269.95

## **Icom VHF Specifications**

Model	Freq Range	Mode	Power Supply	Current Drain Xmit	Current Drain Rec	Power Out Watts	Ant Z ohms	Mike Z ohms	Sens	Audio Power	Built-in AC Supply
IC-2300H	2m †	FM	13.8 VDC	11 A	1.5 A	65	50	600	<.18 µV	4.5 W	no
IC-2730A	2m / 70 cm	FM	13.8 VDC	13 A	1.8 A	50	50	600	<.32 µV	>2.0 W	no
IC-V8000	2m	FM	13.8 VDC	15 A	1.0 A	75	50	600	<.15 µV	>2.0 W	no
ID-5100A	2m / 70 cm	FM	13.8 VDC	13 A	1.8 A	50	50	600	<.15 µV	>2.0 W	no
ID-880H	2m / 70 cm%	FM	13.8 VDC	11.5 A	1.2 A	50 / 50	50	600	<.16 µV	>2.4 W	no

† Extended receiver coverage 118-174 MHz (airband included), 440-450 MHz % extended receiver range. See text with radio.



## **ICOM**

## **RECEIVERS / SOFTWARE**

### IC-R20 - Sport

The IC-R20 features voice scan control, attenuator, RF gain control, noise blanker, automatic noise limiter, multiple scan functions, CI-VPC control (with optional CT-17), backlit keypad. Features include wide range receive 0.15 to 3304.9999 MHz (822-851 and 867-896 MHz blocked). SSB/CW/AM/FM / WFM. dual watch between bands, IC audio recorder, auto squelch, 1250 memory channels, CTCSS / DTCS / DTMF decode, internal bar antenna for AM reception.



### **IC-R6-Sport**

The IC-R6 is a Signal Search Machine. Covering 100 kHz to 1309.995 MHz (cellular blocked and receives analog TV only), it can search 100 channels per second. The receiver is energy-efficient, designed to provide up to 15 hours of listening on a single charge.



With 1300 alphanumeric memory channels, 50 scan edges, and 200 auto-write memories, there are many scanning opportunities. The bank link feature allows connecting any of the 22 memory banks. The Voice Squelch Control opens the squelch only when a modulated signal is detected.

## **IC-R6 Accessories**

Model	Description	HRO Price								
·	Cloning									
CS-R6	Cloning Software	\$44.95								
OPC-478	Cloning Cable (RS-232C)	\$44.95								
OPC-474	Radio to Radio Cloning Cable	\$17.95								
OPC- 478UC	USB PC to Radio Programming Cable	\$60.95								
Headph	one Accessories									
SP-13										
SP-27	Larphone									
Othe	er Accessories									
AD-92SMA	BNC antenna adapter	\$18.95								
BC-196SA	AC Adapter (same as supplied)	\$49.95								
BC-194	Charger Stand	\$29.95								
CP-18A	Cigarette Lighter Cable	\$33.95								
LC-146A	Carrying Case	\$25.95								
FA-S270C	Antenna (same as supplied)	\$33.95								
CT-17	CI-V Level Converter	\$135.95								

### **IC-R75**



This receiver covers the HF bands plus 6 meters (0.03 to 60 MHz). It features twin PBT, built-in DSP capability, and a front mounted speaker. Modes include USB/LSB, CW, RTTY, AM/S-AM and FM. A complete line of filters is available. Operates at 13.8 VDC  $\pm$  15% at 2.0 A. Features 101 memories (99 regular and 2 scan edges). Program scan, memory scan and priority scan. Direct frequency input with numeric keypad. Two-level pre-amp, noise blanker and selectable AGC.



# IC-R9500 Professional Communications Receiver

- +40 dBm IP3 / 109 dB wide dynamic range.
- Measuring class accuracy. Dual IF filter.
- · Superior BPF unit.
- · Dual DSP. 10 VFOs.
- 7" wide color TFT LCD.
- · High resolution spectrum scope. 1000 memories.
- · 2 channel noise blanker.
- · 5 roofing filters. 2 point manual notch filter.
- 0.005-3335 MHz. Cellular blocked.
- · All bands: SSB, CW, FSK, AM. FM, WFM on some.
- · Digital voice recorder.
- · 4 antenna connectors

## HF Automatic Antenna Tuner

AH-4
The AH-4 auto-tuner covers all amateur bands from 80 to 6 meters when used with a minimum 23' long wire antenna. With the optional

AH-2b antenna element, tune 40 through 6 meters for mobile operation. It has automatic band changes and tunes usually in less than 2.5 seconds. The 45 memories store SWR minimum and tuning combinations. Requires only 300 mW to tune and handles up to 120 Watts. **HRO Price \$275.95** 

## Software

# RS-BA1 IP Remote Control for HF Transceivers

Remotely control Icom transceivers through an IP network with the RS-BA1. The RS-BA1 allows you to use the radio installed in another room using your home network or a remote location over the Internet. The low voice latency caused by the RS-BA1 provides the same operational experience as using an actual radio. Most functions and modes of your transceiver can be controlled.

The RS-BA1 has two component applications: System Configuration to set up the IP address and other settings, and Remote Control allows you to control the radio. The display on the RS-BA1 is similar to the radio's front panel. Supports the IC-7200, 7410, 7600, or 9100 with USB connection to a PC. Also the IC7800 or 7700 connected to a PC with an RS-232C cable plus S/P DIF or ACC cable.

## **Icom Cloning**

Icom cloning software for Windows allows you to preprogram memory channels with operating frequencies, set tones, set power levels, set squelch levels, set up auto-dial DTMF frequencies, and exchange operating frequencies. Call for price quotes.

- CS-R6 without cable (R6).
- CS-R20 without cable (R20).
- CS-2820 without cable\* (2820H).
- CS-V80 without cable (V80A).
- CS-2300H without cable (2300H).
- CS-T70A without cable (T70A).
- · RS-91 for IC-91A series.
- RS-92 for IC-92AD.
- \* OPC-478U USB cable for IC-2720H and IC-R5.

## **Power Supply**

**PS-126** 



Matching supply for IC-7600.

**HRO Price \$CALL** 

HRO Offers Extended Warranties on Icom Radios. See Page 41.

## **HF RIGS**

# KENWOOD



### **TS-990S \$CALL** HRO Price

The TS-990S raises the bar on HF performance and DX operating ease in more ways than one. Dual display and dual watch gives you the edge in DX contesting.

- Frequency range HF + 50 MHz.
- Output pwr: 5-200 W.
- · Built-in antenna tuner.
- Mode: SSB, CW, FSK, PSK, FM, AM.
- Built-in switching power supply.
- Comm ports: USB A / B and LAN.
- Dual TFT display and dual receiver. Main display monitors target signal vicinity and sub display monitors actual target signal.
- Down conversion for all Amateur Radio Bands (main receiver).
- IP3 + 40 dBm mixer performance.
- Narrow-band high-IP roofing filters.
- TCXO ±0.1 ppm for high stability receive.
- Dedicated triple DSP for main & sub-receivers plus band scope.
- Remote PC operation.
- Data mode facilitates switching between external terminals.

**Kenwood HF Specifications** 

- · Advanced AGC digital and analog.
- 2-step split frequency configuration for quick setup.
- Maximum of 120 memory channels. Dual channel memory allows access while receiving two frequencies simultaneously.
- Memory accessible during split/sub receiver operation.
- Two USB sockets on front panel.
- Firmware updates via USB stick or cable.
- VCO division-type first oscillator divides high frequencies to ensure high C/N.
- Dedicated triple 32-bit floating point DSPs for main & sub receivers plus band scope, audio scope and S-meter.
- Cooling system capable of providing ample airflow to each unit to ensure a stable 200 W output.

## **Peerless Performance**



TS-590SG HF / 50 MHz All-Mode **Transceiver** 

\$CALL - HRO Price

The TS-590SG is an upgrade to the TS-590S and features a narrow-band roofing filter to significantly reduce interference from unwanted signals. The resulting excellent RX perfomance reveals signals that would be hidden to lesser rigs. With IF AGC based on advanced DSP technology. Kenwood has essentially redefined HF performance.

- · Has sharp 500 Hz / 2.7 kHz roofing filter and dedicated first mixer.
- · Built-in electronic memory kever.
- · Programmable keys, 110 memory channels, memory scroll function, multiple scan functions.
- · Advanced AGC through digital signal processing from the IF stage onward, digital IF filters, detection and demodulation, noise reduction and IF notch IF auto notch, IF AGC, AF digital signal processing, two types of noise reduction, and TX audio shaping.
- · Direct frequency entry, USB connectivity for PC control, remote control using a computer, optional voice guide and storage unit.
- · Morse code decoder function.
- Transmitter features: 100 Watt heavyduty design, built-in automatic antenna tuner, optional TCXO, drive output, speech processor (SSB / AM / FM), adjustable TX filter (SSB / AM), TX equalizer, TX monitor; VOX, adjustable TX power output and CAR level.
- Split function enabling guick setting.

## **Compact, Portable HF Mobile Transceiver**

## TS-480HX / TS-480SAT **\$CALL** - HRO Price

With its separate control panel, the TS-480 is perfect for base station use, while ample receive audio makes it outstanding for mobile applications. Using 13.8 V for power, the TS-480HX delivers 200 W; the TS-480SAT delivers 100 W and has an automatic antenna tuner.

- 500 kHz-60 MHz general coverage receiver.
- · Separate LCD control panel with speaker. It can be positioned up to 4 meters from the main unit.
- · PC-based control.
- TX / RX AF DSP. 16-bit AF digital signal processing offers noise reduction, TX / RX equalizer and AF filters.



- Optional IF filters available.
- TX covers all amateur bands 1.8 MHz to 60 MHz plus 5 MHz band for the US.
- Quad-mixer provides RX dynamic range in the TS-950 class.
- · PSK-31 compatibility.
- · Packet cluster tune with optional TM-D710A with user supplied cables.
- Additional front panel available.

		Power S	Supply	Current	Drain			Power	K.								
Model	Receiver Frequency Range	50/60 Hz AC	DC	Xmit	Rec	АМ	FM	SSB	cw	FSK	FSK Shift	Mike Z ohms	Receive Circuitry	Sensitivity	RIT / XIT	Notch Filter	Audio
TS-2000*	0.5-30 MHz, 50-54 MHz, 144-138 MHz, 430-450 MHz, 1240-1300 MHz¢		13.8 V	20.5 A	1.5 A	100	100	100	100	100	100	600	Quadruple Conversion	<.11µV SSB,CW,FSK (varies with band and mode)	±20 kHz	> 30 dB	1.5 W
TS-590SG	0.13 MHz - 60 MHz		13.8 V	20.5 A	1.5 A	25	100	100	100	100		600	#	< .2 µV	±9.99 kHz	> 70 dB	1.5 W
TS-480SAT†	500 kHz - 60 MHz		13.8 V	20.5 A	1.5 A	25	100	100	100	100		600	#	< .2 μV	±9.99 kHz	:s=	2 W
TS-480HX	500 kHz - 60 MHz		13.8 V	41.0 A	1.5 A	50	200	200	200	200		600	#	< .2 μV	±9.99 kHz	S=	2 W
TS-990S	0.13 -30 MHz 50-54 MHz	yes		720VAC	120VAC	50	200	200	200	200		600	Double Superheterodyne	< .2 μV	±9.99 kHz	> 70 dB	1.5 W

# Double Conversion SSB, CW, AM; Triple FM (1)170, 200, 425, 850 Hz †Output 6 M 480 HX - 100 W / 50 W AM 480 AT 50 W / 25 W AM

\*Output 440 MHz 50 W and 1000 MHz 10 W ¢Only on model TS-2000X

# **KENWOOD**

## **MOBILES**

## All-Mode / All-Band

TS-2000

**\$CALL** - HRO Price



The TS-2000 is a marvel of electronic engineering. The TS-B2000 is a "Black Box" version for computer control or vehicle use with the optional RC-2000 mobile controller. ARCP-2000 radio control software is supplied with the TS-B2000.

2 Meters plus Weather

TM-281A delivers powerful mobile performance with 65 W maximum

output. The weather alert radio function checks the 1050 Hz tone

from NOAA (US only). The radio features 200 memories (100 if

memory channel names are assigned to the channels), menu for easy

control and function selection, CTCSS or DCS to reject unwanted

calls, easy to read large LCD alphanumeric display, FM and narrow

band FM ready, and free PC memory control software is available.

**HRO Offers Extended** 

Warranties for Kenwood Radios.

- · All mode multibander: HF (not 60 m) / 50 / 144 / 440. 1200 MHz operation is also available on the TS-2000X.
- 500 kHz to 1300 MHz wide band receiver with dualchannel receive. Has satellite mode plus a sub 144 / 440 MHz FM / AM receiver so two frequencies can be received simultaneously.
- · Built-in TCXO with professional performance ±0.5 ppm (-10 to 50 degrees C).



TS-B2000

TM-281A

**\$CALL HRO** Discount Price

On or off road, the

- · The IF digital signal processing provides for DSP detection, digital filtering, IF auto notch and IF AGC.
- The transmitter provides 100 Watts on HF / 50 / 144 MHz bands (AM 25 Watts). 50 (AM 12.5) Watts on 440 MHz. 1200 MHz operation, the unit delivers 10 (2.5 AM) Watts.
- · High speed processing using two 16-bit DSP chips, double precision computing and a 100 MHz CPU and 24-bit A/D and D/A converters.
- The Kenwood Sky Command System II Plus is built-in.
- Built-in auto antenna tuner, DX cluster tune and an antenna terminal dedicated to HF low-band operation.

## **Dual-Band Mobiles**

## **TM-D710G** 2 m / 70 cm

## **\$CALL**

**HRO Discount Price** 

Kenwood provides advanced APRS® ham radio equipment with the TM-

D710G mobile transceiver. It offers even more features and versatility



than its predecessor. The detachable control head comes with remote cable for easy installation. The radio incorporates a 9-pin PC connection for easy hook-up to program frequencies and other APRS® mapping programs. Your TM-D710G is a full dual-band radio so VHF+VHF / VHF+UHF / UHF+UHF operation is possible. Full digipeater functions allow anyone to set up a digipeater location wherever needed to help fill in APRS® nationwide network. Internet gateway operation is also possible for world-wide text communication over VHF.

- · Now includes built-in GPS and upgraded firmware.
- Output 50 W VHF/ UHF.
- · Receives 118-1300 MHz (cellular blocked).
- · Two back light colors: amber /
- · Alphanumeric dot-matrix LCD · Easy-to-use menus. 1000 memo-
- Internal clock for APRS® time & date stamping.
- APRS® filter and sort functions.
- APRS® speed and altitude beacon-

- · Three different APRS® grids.
- · EchoLink® ready with 10 dedicated memories
- · APRS® QSY function, delay algorithm, voice alert and weather beaconing.
- · Dual receive and NOAA weather
- · SkyCommand II.
- · Sound card interface.
- · VGS-1 voice guide and storage optional.
- NMEA 0183 GPS i/O port.
- Free MCP programming software.



Kenwood's TM-V71A FM dual bander is locked and loaded for action. It is equipped to shine in any mobile communications role. It features 50 W output, 1000 memory channels, multiple scan options and PC connectivity.

- High power output 50 W on VHF/ UHF.
- · Same band dual receive (V/V, U/U,
- · Compatible with ARRL TravelPlus.
- "Five-in-One" programmable memory storing five different operating profiles.
- 1000 split memory channels plus an additional 10 for programmable
- · PC programmable w/PG-5G (op-
- · Built-in CTCSS/DCS encoder.
- · 104-code digital code squelch.

- · Invertible front panel.
- · Choice of backlight (amber/green).
- · Voice guidance and storage option with optional VGS-1.
- · Weather alert / RX (US only).
- · EchoLink® Sysop mode for node terminal operation.
- · EchoLink® memory autodialer.
- · Wide band receive (118-524 MHz and 800-1330 MHz cellular blocked).
- MC-59 16-key hand microphone with backlighting.
- Selectable repeater offset or auto repeater offset (on VHF only).



## **HANDHELDS**

## TNC with APRS®



RC-D710

## Add TNC to Your TM-V71A

The RC-D710 is a stand alone 1200 / 9600 bps TNC with APRS® firmware. With the supplied accessories, the RC-D710 is a full upgrade to the TM-V71A. By exchanging the TM-V71A panel with the RC-D710, you will have the full functionality of the TM-D710A. Supplied accessories include: open ended GPS cable, cable with modular plug for panel connection, two bases for control head (mobile and base), line filter, and instruction manual on CD-ROM.



## **Interface Kit**

Functioning as an external modem, the PG-5J connection kit makes the RC-D710 a complete stand alone APRS®/TNC for any of these Kenwood models: TM-D710A, TM-V71A, TM-D700A, TM-G707A, TM-V7A, TM-732A, TM-733A, TM-255A, TM-455A. Includes data and DC cables.

## **Extended Radio Warranties**

## Kenwood VHF / UHF Specifications

Model	DC Power Supply	Transmit	Receive	Output Power	Sensitivity	HRO Price
TM-281A	13.8 V	13 A	1.2 A	65 W	<.16 µV	CALL
TM-V71A	13.8 V	13 A	1.2 A	50 W / 50 W	<.16 μV	CALL
TM-D710G	13.8 V	11.5 A	1.0 A	50 W / 50 W	<.16 μV	CALL

## **Handheld Battery Packs**

Battery	Voltage	Voltage Rating Desk		Radio Series	HRO Price	
PB-42L	7.4	2000		TH-F6A	\$73.95	
PB-43N	7.2	1100	KSC-24	TH-K2AT	\$41.95	
PB-45	7.4	1800	KCS-32	TH-D72A	\$69.95	
KNB-65L	7.4	1520	KSC-35S	TH-K20A	\$47.95	

## Kenwood Handheld Specifications

## **One Band**

### TH-K20A

2 m

This 2-meter handheld is the successor to the TH-K2 series.

- · Tone alert (bell).
- · Cross tone.
- 5.5 W RF output.
- · Weather CH scan.
- VOX Included (optional headset required).
- · Auto repeater offset.
- · Direct function key.
- Firmware upgradable.
- Built-in CTCSS, DCS and 1750 Hz tone burst.
- Battery capacity indicator.
- Direct frequency entry.
- · Auto repeater offset.
- · Time-out timer.
  - · Beat shift.
  - Frequency shift.
  - Key lock type select.



## **Dual Band**

## TH-D72A 2 m / 70 cm

## Enhanced GPS & APRS® capability

- 2 m / 70 cm transmit with wide band receive.
- Dual receive, V/V, U/U, V/U, U/V.
- · 5 Watts transmit.
- Built in GPS uses the SiRF Star III chipset (same as Garmin).
- GPS track logging function. Memory can be output to PC in KML format to be displayed on Google Maps.
- 1000 memory channels with 8 digit alpha name function.
- Built in 1200 / 9600 TNC AX.25 with KISS mode and digipeat functions.
  - Mini USB connector built-in.
  - Built-in Kenwood Sky Command II.
  - External GPS ready, built in RS-232 com port (same as D7).
  - Air band RX with 8.33 kHz step.
  - Free programming software.
  - · Smart beaconing.



## Tri Band

## TH-F6A

2 m / 220 Mhz / 70 cm

\$CALL - HRO Price

The TH-F6A has a dual personality: it's a 3-band transceiver and also a wide-band (0.1-1300 MHz\*) receiver. In addition to FM/FMW/FMN/AM and SSB/CW, the receiver has a special weather channel mode.

It can receive 2 frequencies simultaneously, even on the same band. The rig features 435 memories including 3 call channels and another 20 for programmable scan. The HT comes equipped with a 7.4 volt 2000 mAh lithium-ion battery providing 5 Watts output. Ease

of operation is achieved with a multi-scroll key that can be rocked up and down (frequency), left and right (band) with the thumb. Has a 16-key pad for direct entry, menudriven interface, key illumination and backlit LCD display. Includes memory shift, kev lock, timeout timer, wireless remote control.





Model	Freq Range	Power Supply	Power Out	Current Transmit	Current Receive	Sensitivity	Height in (cm)	Width in (cm)	Depth in (cm)	Weight oz (g)	HRO Discount Price
TH-K20A	144-148 MHz	6-9 VDC	5.5 W			<.16 µV	4.4 (11.2)	2.13 (5.4)	1.0 (2.5)	7.4 (210)	CALL
TH-F6A	144/220/440MHz	5-7.5VDC	5 W	2.0 A	35 mA	<.13 μV	3.4(8.7)	2.3(5.8)	1.2(3.0)	8.8 (250)	CALL
TH-D72A	144/440MHz	7.4VDC	5 W			<.18 μV	4.78(12.1)	2.28(5.8)	1.31(3.3)	13.1 (370)	CALL



### The radio



## FTDX5000MP Limited

**\$CALL for HRO Price** 

The FTDX 5000 MP Limited HF / 50 MHz 200 Watt transceiver is a new premium class of Yaesu radio with 2 independent receivers plus many unique options and accessories designed to meet the performance requirements of even the most demanding serious amateur radio operator.

## **Desk Microphones**

## MD-200 A8X \$CALL

HRO Price

Desk microphone designed for base station use with Yaesu's newest generation transceivers.

Features a studio-quality polyethylene teraphthalate film dynamic element. Provision for incorporating user supplied mike element with a switch to select between the standard and user element.



This desk microphone features selectable low-cut filtering and high-emphasis active filtering that allow you to tailor the microphone response for optimum voice clarity or DX punch. It has a large pushto-talk switch and latching button, along with a large rotary up/down, slow/fast control for scanning.

- robust and high-power final amplifier stage incorporates two super reliable FETs (VRF-150; drain-source voltage 170 V/gate source voltage ±40 V, total device dissipation 300 W) in a push-pull configuration, offering a solid 200 W output (75 W class A operation).
- The FTDX 5000MP Limited radio has its own built-in power supply (110 / 220 VAC).
- Two (2) totally independent receivers give you performance and flexibility previously only provided by much more expensive radios.
- Super sharp "roofing" filters for VFO-A / main receiver. Filters are selectable between 300 Hz, 600 Hz, 3 kHz (6-pole crystal filter), 6 kHz, 15 kHz (4-pole MCF).
- Variable CW audio peak filter, and high / low-cut filtering created through the very latest in DSP technology. CW width: 50 / 100 / 150 / 200 / 250 / 300 / 350 / 400 / 450 / 500 Hz. CW pitch frequency: 300~1050 Hz (10 Hz steps).
- Three electroluminescent clear displays included for easier operation and control of the sub-frequency, graphical wave and menu function.

- 32-bit floating point DSP based on the TI TMS320C6727B (@300 MHz), one EACH for VFO-A and VFO-B.
- True analog meter precision. Enjoy the huge size metering system true analog precision and instant reaction time.
- IF output (9 MHz) from VFO-A/ main receiver.
- Provides loads of practical level indication that clearly show settings of microphone gain / RF power / CW pitch / keyer speed / processor level / VOX delay time / break-in delay time.

## **Valuable Options**

- SM-5000 Matching Station Monitor. With the bandscope is a complete, enhanced stereo speaker system with superb audio quality.
- Yaesu Data Management Unit DMU-2000. Utilize its powerful audio scope, oscilloscope, spectrum scope, logging, and rotator control capabilities using your own personally selected and purchased computer display monitor and keyboard.
- Yaesu External Fully-Automatic Micro-Tuning Units.
   Three modules available: A (160 m band), B (80 and 40 m bands), C (30 and 20 m bands).

Extended Warranties - See Page 41.

## HF TRANSCEIVERS



## FT-DX1200

## HF / 50 MHz 100 Watt Transceiver

Continuing the Yaesu "FT DX" Legacy of Excellence established decades ago, the FT DX 1200 is designed for the casual operator as well as the competitive operator, whether you primarily participate in contests, chase DX, or enjoy field operating. The high frequency design technology it has inherited ensures "Best in Class Performance."

The FT DX 1200 provides up to 100 Watts on SSB, CW, FM, and AM (25 Watts carrier) and a rugged state-of-the-art highly-balanced receiver circuit configuration for top performance on today's crowded bands. Similar to the high-end "Yaesu FT DX" series, it uses 32-bit high speed floating point DSP for renowned proven performance.

A built-in 4.3-in TFT wide full color high resolution display with loads of information provides superior operability and visibility for the FT DX 1200 user. A spectrum scope located just below the LCD display gives the operator all the information needed to be at the right place on the band with the right receiver set-up to have a satisfying experience with a casual QSO chat or while digging out a rare desired weak signal contact.

Optional accessories are offered to provide very desirable additional features that make the FT DX 1200 a flexible true high performance platform for all hams – no matter what mode they choose to operate.

- General coverage reception from 30 kHz to 56 MHz.
- FM and AM wide and narrow modes included.
- The main tuning knob, made from machined aluminum, has the solid feeling of a large fly wheel, while being nimble and smooth in operation. Each user may set his / her favorite torque feeling of the main dial rotation.
- External control (CAT) is possible using the serial port or the optional SCU-17 USB interface unit. This feature means the FT DX 1200 can be remotely controlled from a distant location.
- High performance triple-conversion receiver circuit structure enables elimination of unwanted signals through filters at each stage as well as optimized gain distribution.

- QRM and QRN rejection using IF shift, IF width, contour, IF notch, or CW audio peak filter.
- Selectable roofing filters of 3 kHz, 6 kHz, and 15 kHz.
- Three IPO settings best signal reception during changing band conditions.
- CW features include CW zero-in display, CW spot, full breakin,adjustable CW "VOX" delay, CW mode reversable, separate front and rear key jacks, builtin electronic keyer, 4 channel message memory.
- · Two antenna inputs.
- Optional fully automatic µ-tuning kit.
- Top performing receiver RF front end.
- Connected to a PC with a USB cable through the use of an optional SCU-17 interface.

Extended Warranties Available from HRO on Yaesu Radios



## HF / 50 MHz 100 Watt Transceiver

The FT DX 3000 is one of the long line of top-performing Yaesu FT DX transceivers. It inherits the design concepts of the FTdx5000 transceiver that has received high praise from all over the world by those pursuing the highest ideal of amateur HF communication equipment.

The FT DX 3000 exhibits phenomenal multi-signal characteristics first demonstrated in the top-rated FT DX 5000. Using the two signal dynamic range measuring method with 10 kHz signal separation, the FT DX 3000 performance is 108.5 dB, IP3 +37 dBm. With frequency separation of only 2 kHz between the desired signal and an interfering signal, the dynamic range measures 106 dB and IP3 +33 dBm.

With all its features and amazing performance at a truly affordable price, the FT DX 3000 is a terrific rig for home or a DXpedition.

## Yaesu's latest, with amazing receiver performance from its FT-DX5000 heritage

- Covers all amateur radio bands from 160 to 6 meters.
- General coverage reception from 30 kHz to 56 MHz.
- · 100 Watt output on all bands.
- FM and AM wide and narrow modes.
- · IF DSP for QRM rejection.
- · High speed spectrum scope.
- AF scope display.
- RTTY/PSK31 encoder/decoder (optional).
- · 3 antenna connectors.
- Built-in high-speed automatic antenna tuner included. The antenna tuner uses LC switching. It has a large capacity 100 channel memory; the tuning data is automatically memorized to reduce tuning time when changing frequency.
- · USB interface equipped.
- Wide viewing angle 4.3" LCD display.
- Independent frequency display with wider viewing angle and higher contrast.
- Signal output for an external receiver and 9 MHz IF.
- · USB input for firmware updates.
- · IF width and IF shift functions.

- Fifteen separate band pass filters.
- 3 kHz roofing filter for SSB and 300 Hz (optional) and 600 Hz roofing filters for CW.
- "Contour" tailors the received audio signal without changing the bandwidth.
- IF notch has attenuation characteristics of 70 dB or more.
- Digital noise reduction by DSP.
- Many CW features including CW audio peak filter, CW decode, CW spot, Auto zero-in display, full break in, four message memory (50 characters each) automatic "beacon" keyer mode and separate key jacks on the front and rear panels.
- Effective QRM rejection is achieved using 32-bit high speed floating decimal point DSP. The signal is processed with the high speed 300 MHz clock frequency.
- Microphone amplifier with parametric equalizer.
- · IF DSP speech processor.
- 5 digital voice messages. Each memory channel is capable of storing up to 20 seconds of audio using the optional DVS-6.
- Dimensions 14.4" x 4.5" x 12.3" (W x H x D) and weighs only 22 pounds.
- External control (CAT) is possible using USB or Serial Port; this feature means the FT DX 3000 can be remotely controlled.







## FT-991 Transceiver HF / 50 MHz / VHF / UHF



The FT-991 is capable of operating SSB, CW, AM, FM, packet and system fusion C4FM digital. Whether you primarily operate at home, mobile or in the field, the FT-991 will provide outstanding fundamental performance and inviting expansion into a full-featured base station. Uncompromising receiver circuit ensures excellent performance from HF to VHF/UHF.

- Receive coverage 160 m through 70 cm.
- Transmits HF at 100 W, 50 W (2 m), 50 W (70 cm).
- 3.5 inch TFT full-color touch panel operation.
- · High speed spectrum scope with automatic spectrum-scope control built in.
- Roofing filter 3 kHz and 15
- Triple conversion with 1st IF frequency of 69.450 MHz on all bands.
- · High accuracy TCXO ±0.5ppm.
- Separate RF amps for best characteristic for each

- · High resolution DDS and PLL local oscillator.
- · 32 bit high speed floating point IF DSP.
- · IF width and IF shift.
- · Contour, DNR, IF Notch. APF for CW only.
- 160-6 m, high speed automatic antenna tuner
- · Full color TFT / LCD display. Four user defined function keys.
- · Electronic keying with break-in support, electronic keyer weight control.
- Message memory func-
- 50 tone CTCSS encoder / decoder for FM operation.

## 10m / 6m / 2m / 70cm FM

FT-8900R \$CALL - HRO Price

The FT-8900 combines "traditional" 2m / 70cm local communications with the exciting capability of Sporadic-E or F2 DX on the 10m and 6m bands, allowing nationwide FM communication.



- · Covers 28-29.7 / 50-54 / 108-180 / 320-480 MHz and 700-985 MHz (cellular blocked and non-restorable).
- · Independent 2-channel, dual-receive, full duplex.
- · High power output with 50 Watts on 10m / 6m / 2m and 35 on 70cm.
- · Large, easy-to-read LCD display.
- · Built-in duplexer.

- More than 800 memory channels. 799 "regular," 6 "home," 5 sets of band edge, and 6 "Hyper."
- Cross-band repeater capability.
- · Versatile scanning.
- · CTCSS / DCS built-in.
- User-programmable mike kevs.
- Remote head mounting with optional YSK-8900.

## **High-Power External Loudspeakers**



\$44.95 - HRO Discount Price

This high-performance communications speaker matches the impedance and output requirements of most Yaesu transceivers. It mounts on a swivel stand that is supplied along with mounting screws and bolts. A 6.5 foot (2 m) audio cable that terminates in a 3.5 mm mono mini plug is also supplied.



Yaesu's external speaker matches the impedance and output requirements of most Yaesu transceivers. The waterproof (IP55) speaker has 4Ω impedance. Maximum power input: 12 W. The speaker works in stereo with the FTM-350, FTM-400, FTM-10 radios. Comes with 3-meter cable with 3.5 mm standard 3-contact miniature phone plug.

## Extended Warranties on Yaesu.

## Yaesu HF Specifications

		Pow	er Supply	Curre	nt Drain		Power	Output							
Model	Frequency Range	AC	DC	Xmit	Rec	AM	FM	SSB	cw	Mike Z ohms	Receive Circuitry	Sensitivity†	RIT / XIT Range	Audio Output	HRO Price
FTDX1200	30 KHz-60 MHz		13.8 VDC	23 A	2.1 A	25 W	100 W	100 W	100 W	200-10K	Triple	< .16 µV	±9.99 kHz	2.5 W	CALL
FTDX5000 Series	30 KHz-60 MHz	90- 264		5.5 A		50 W	200 W	200 W	200 W	200-10K	Triple	<.2 μV	±9.99 kHz	2.5 W	CALL
FTDX3000	31 KHz-60 MHz		13.8 VDC	23 A	2.1 A	25 W	100 W	100 W	100 W	200-10K	Double	<.2 µV	±9.99 kHz	2.5 W	CALL
FT-450D	30 KHz-56 MHz		13.8 VDC	22 A	1.5A	25 W	100 W	100 W	100 W	200-10K	Double	< .25 µV	±9.99 kHz	2.2W	CALL
FT-857D	See page 16		13.8 VDC	22 A	1 A	25 W 12.5 W 2m 5W 70cm	100 W 50 W 2m 20 W 70 cm	100 W 50 W 2m 20W 70 cm	100 W 50 W 2m 20 W 70 cm	200-10K	Double	<.2 μV	±9.99 kHz	2.5 W	CALL
FT-991	See product description		13.8 VDC	23 A	2.2 A	2 - 25 W	100 W 50 W 2m 50W 70 cm	100 W 50 W 2m 50W 70 cm	100 W 50 W 2m 50 W 70 cm	200-10K	Triple	<.158 μV HF <125 μV 6m <.111 μV VHF.UHF	±9.99 kHz	2.5 W	CALL

<sup>†</sup> Sensitivity measurements for 1.8-30 MHz SSB,CW

## HF TRANSCEIVERS WITH 6 M / 2 M / 70 CM

## Compact HF + 6m Transceiver



The Yaesu FT-450 provides world class performance in an easy to use, compact package. It employs state of the art IF DSP technology to bring an array of advanced features to the operator. Transmit frequency coverage includes 160 to 6 meters. The receive range is 30 kHz to 54 MHz. Power output is 100 Watts on HF and 6 meters. Operating modes include USB, LSB, CW, AM and FM.

- The rig is 9" W X 3.3" H X 8.5" D and weighs 7.9 pounds. Perfect for mobile or portable operation.
- Includes MH-31A8J hand mic, mic clip and DC power cord.
- Includes 10 kHz roofing filter right after the first mixer, providing narrow band selectivity protection of the IF & DSP stages – rarely found in rigs of this price range.
- · 400 MHz built-in IF DSP.
- · Built-in electronic keyer.
- LCD multi-function display.
- Built-in TCXO ± 1ppm/hour (after warmup).

- AFC Fast-Slow-Auto-Off selection.
- · Clarifier adjustment.
- Dedicated data jack for FSK
  BTTV
- · CTCSS
- User functions configurable by menu
- Digital voice announcements of frequency, mode and Smeter.
- 500 regular memories and two voice memories.
- · CW beacon function.
- · Illuminated key buttons.

## The Smallest HF + 6m + 2m + 70cm



The power amplifier uses bipolar transistor devices for low noise, low distortion and high reliability. Has an extensive cooling system with a thermostatically-controlled fan and aluminium die cast chassis.

Optional Remote Head

The receiver front-end has a very low noise floor and wide dynamic range. Features a double conversion superheterodyne system (single on WFM) with the second IF at 455 kHz; bandpass filtering, device selection and gain distribution for strong signals. On VHF and UHF, the very low noise MOSFET preamplifier and active DBM mixer aid in working weak signals and rejecting intermodulation.

- Receive coverage 100 kHz to 56 MHz, 76-108 MHz, 420-470 MHz. Includes 60m.
- Transmits 160-6 m, 144-148 MHz, 430-450 MHz and 5167.5 kHz (Alaska emergency frequency on USA version).
- SSB, CW, AM, FM, packet (1200 / 9600 bps) operation.
- Power out: 100 W (160-6 m), 50 W (2 m), 20 W (70 cm).
- DSP bandpass filter, DSP autonotch filter.
- DSP noise reduction, microphone equalizer.
- VHF / UHF features: versatile tone control selections, automatic repeater shift, Smart Search™, Spectrum Scope and ATS™.
- DXer features: IF shift, IF noise blanker, intercept point optimization, adjustable AGC, RIT. RF gain control, and VOX.
- Easy data mode for operation on 1200 / 9600 bps FM packet, RTTY, SSTV or PSK31. Rear panel 6-pin mini-DIN connector for each connection of these modes.

- CW features: built-in electronic keyer, CW message memory with beacon mode, CW pitch / sidetone control, and CW trainer.
- 200 main memories, 8 character alphanumeric labels. 10 groups with 20 memories each.
- · Large multi-color display.
- Battery voltage meter, TX meter selection, two antenna connectors, versatile scanning features. auto power off, time out timer and CAT system.

### Options include:

- ATAS-120: Active Tuning Antenna System for mobile, portable or apartment/balcony use.
   Designed for use on the 7 / 14 / 21 / 18 MHz amateur bands.
   Can be used fully retracted on the 50 / 144 / 430 MHz bands.
- Collins® Mechanical Filters: YF-122S 2.3 kHz SSB YF-122C 500Hz CW
   YF-122CN 300Hz CW
- · YSK-857 Separation Kit
- TCXO-9 High Stability Reference Oscillator.

## 5 Watt Backpack / HF Plus



## Now with FNB-85 battery 1400 mAh NiMH + NC-72B Charger

- Fully self-contained batterypowered low-power amateur transceiver for portable, camping, or mountain use. Includes 6 m.
- Transmits on: 160-10 m, 50 / 144 / 430-450 MHz, plus Alaska Emergency Channel (5167.5 kHz).
- Receives: 100 kHz-56 MHz; 76-154 MHz; 420-470 MHz. (Exactfrequency range may differ slightly.)
- Operating modes: USB, LSB, CW, AM, FM, WFM, digital (AFSK), packet (1200 / 9600 FM).
- Power output: 5 Watts SSB/CW /FM with 13.8V external DC; 1.5 W AM carrier; 2.5 W SSB / CW / FM with 9.6V Ni-Cd Pack or 8 "AA" batteries (AM: 0.7 W); up to 5 W SSB / CW / FM power (maximum) programmable via menu on NiMH / AA cells.

HRO Offers Extended Warranties on Yaesu Radios. See Page 41.

HRO ships quickly from the store nearest you.

## **DUAL BAND MOBILES**

### The radio

## **Internet Linking Kit**





## WIRES-X Internet Linking Kit

### **\$CALL**

**HRO Discount Price** 

WIRES-X supports both Analog and the new C4FM Digital radio communications modes. Yaesu's System Fusion, already the fastest growing Amateur Radio Digital System, is certain to see yet another pique in interest thanks to WIRES-X!

- WIRES-X allows communications between both C4FM digital stations and conventional FM stations via WIRES-X.
- High quality voice communication is achieved by repeating C4FM digital data as it is via the Internet.
- WIRES ID: Adopted a simple user ID system using alphanumeric characters.
- Smart Access: WIRES-X automatically connects to nodes and rooms by utilizing the Smart Access function. (Digital node station only).
- Preset Search: User can find local node station and receive their frequency setting data for automatic setup. (Digital node station only).
- Activity Monitor: IDs of active nodes and rooms can be searched from the C4FM transceiver via a local node. (Digital node station only).
- News Station: Stores and reads digital data such as text, images and audio data. (Digital node station only).
- Supports Analog FM mobile transceiver for Analog node station as well as Digital node station with FTM-400D.

HRO
Offers
Extended
Warranties
for Yaesu Radios.
See Page 41.

## 2 m / 440 MHz Mobiles

## 2 m / 440 MHz Dual Band

## FTM-400DR \$CALL

**HRO** Discount Price

Operate on 2 m and 70 cm with this mobile transceiver. Select power of 50, 20, or 5 Watts on either band. Enjoy wideband receive from 108-470 and 800-999 MHz (less cellular). Four scan modes: VFO, memory, programmable memory, or selected memory. Each memory can store frequency, mode, tag, repeater information, tone, DCS, antenna squelch information, memory skip information, and transmission out-

put. Set the screen background to any of 5 colors (green, blue, orange, purple or gray). Capture images and video by connecting a USB camera (not supplied) and transmit and receive them. There is a port for a microSD card.



- Transmit bands 2 m / 70 cm.
- · Double conversion receiver; twin RX.
- · Large color display.
- 500 memories per band.
- · Internal clock / calendar.
- · Image receive / transmit.
- GPS / APRS®.
- 1000 memories in 2 banks; four scan modes.
- · Band scope; spectrum scope.
- ARTS<sup>™</sup> and optional Bluetooth<sup>®</sup>.
- Optional voice guide speaks operating frequency and records received signals.



- · Wide frequency coverage.
- More than 1000 memory channels, each capable of storing a 6-character alpha-numeric label.
- · YSK-7800 remote mounting kit (option).
- WiRES™ internet linking capability.
- · One-touch "Hyper Memory" operation.
- High power output 50 Watts of power output on VHF and 40 Watts on UHF.

The FT-7900R provides 50 Watts of power on the 144 MHz band and 40 Watts on 430 MHz. It is designed for simplicity of operation with high performance in the receiver section. The FT-7900R is ideal for the active Ham who has a need for simplex, repeater, or FM satellite operation on both bands, but without the complication of cross-band repeat capability.

## 2 m / 440 MHz Dual Band

## FT-8800R

\$CALL - HRO Price

The FT-8800R provides easy operation, outstanding receiver performance and crossband repeat capability.

- Wide receiver frequency coverage of public safety, commercial, aircraft and government communications.
- Independent two channel operation operates as two radios in one.
- Large LCD display.
- High power output with 50 Watts on 2m; 35 on UHF.



- · One-touch band-pattern.
- More than 1000 memory channels with 512 regular memories on each band.
- CTCSS and DCS tone systems.
- · User-programmable microphone keys.
- Convenient remote-head mounting capability with the optional YSK-8900 separation kit.

## 2m Mobiles



## FT-2900R 2 meters **SCALL**

The FT-2900R, King of the Mobiles, is a ruggedly-built, high-performance 75-Watt 2-meter mobile FM transceiver

with outstanding receiver performance and 3 Watts of loud clean audio.

Smart Search™.

· Versatile scanning capability.

· The FT-2900R includes a

conveniently-located "Internet"

key, for quick access to Internet-

linked repeater systems. Internet

repeater linking allows you to talk

to other Amateurs throughout

the world with outstanding voice

signal quality. The "Internet"

key may be configured to send

either a single DTMF digit or a

DTMF string, for operation on

a WIRES™ (Wide-Coverage

Internet Repeater Enhancement

• MH-48A6J DTMF direct access

· Interactive programming menu.

· Large 6 digit backlit LCD display.

System) repeater.

microphone.

· RF-level squelch.

· Supply voltage display.

- · 75 Watts of solid RF power with no cooling fan needed! Four selectable power output levels are provided: 75 / 25 / 10 / 5 Watts. Power levels may be stored in memory.
- 221 memory channels, including 200 "regular" memories, ten pairs of band-limit memories, and an instant-recall "Home" channel for a frequently-used repeater or simplex frequency. Memories can store repeater shift information, CTCSS/DCS data, power output level, scanning status ("Skip"), and alphanumeric labels.
- CTCSS and DCS encode / decode built in.
- · Weather channels with "severe weather" alert.
- Wide / narrow deviation selec-

## FT-1900R 2 m plus extended receive

**\$CALL** - HRO Price

The rugged, high-performance FT-1900R is a 55-Watt

2m mobile FM transceiver with outstanding receiver performance and crisp, clean audio. Optimized for ease of operation day or night.

- · 55 Watts of power output, with "low power" settings of 25, 10, and 5 W.
- · Four user-programmable "soft" keys on the microphone.
- · 200 regular memories, ten pairs of band-limit memories, 8 memory banks, and a onetouch "Home" channel. Memory channels store repeater offset, CTCSS or DCS data, and can have a six-character label appended. Memories may be allocated into as many as eight banks for more efficient scan-
- Multiple scanning modes.
- · Large 6 digit backlit LCD display.

- · 3 Watts of audio output.
- · Receiver coverage 136-174 MHz. includes commercial. military, public safety, and marine communications.
- · Built-in CTCSS / DCS encoder / decoder
- · Automatic repeater shift.
- · Enhanced paging and code squelch system.
- · Security password helps prevent unauthorized use.
- · Severe Weather Alert feature (US only).
- · Cloning.
- · RF squelch, CW training.
- · Adjustable TX deviation level.
- · Automatic power off.

## **Quad Band**

## VX-8DR 2 m 220 MHz 70 cm 6 m

**\$CALL** 

**HRO Discount Price** 



Shown with Optional GPS

The VX-8DR APRS® / GPS / Bluetooth® handheld transceiver includes the features and specifications of the VX-8R but also new expanded APRS® capa-

bilities to meet the needs of even the most active APRS® user. The VX-8DR and VX-8R look the same and use the same accessories.

Kev additional APRS® features of the VX-8DR compared to the VX-8R in-

- Smart Beaconing™ function: when using APRS® for position tracking, the beacon timing is automatically adjusted to your traveling speed and location to plot a smoother trace that matches your position and movement on a map.
- The number of station-list memories has increased from 40 to 50.
- The number of APRS message memories has increased from 20 to
- DIGI-PATH route indication function: The APRS® packet data includes digipeater routing info.
- Heads up compass display to the GPS Screen: your traveling direction is always toward the top of the
- The message received LED flashing rate is selectable.
- The number of DIGI-PATH route settings is increased from 1 to 7.

## Tri Band

## VX-6R 2 m 220 MHz 70 cm

**\$CALL** 

**HRO Discount Price** 

The VX-6R is an easy-to-use little brother to the VX-7R. and is both rugged and submersible (JIS7: 30 minutes of submersion at depth of 3 feet).



- · Covers 504 kHz to 998.99 MHz (with cellular blocked).
- · 5 Watts of power 144 and 440 MHz bands (1.5 W on 222 MHz).
- · FNB-80LI 1400 mAh lithium-ion battery pack standard.
- · Emergency automatic ID (EAI) system.
- Enhanced paging and code squelch (EPCS).
- Wake-up battery saver .
- · Security password.
- 900 memory channels with alphanumeric labels.
- One-touch memory access
- · CW trainer.
- · Compact package measuring just 2.3" x 3.5" x 1.1" WHD.
- · Oversized volume and squelch knobs.



21



## **DUAL BAND HANDHELDS**

### The radio



## FT-2DR 2 m / 70 cm \$CALL

HRO Discount Price

The FT-2DR is designed for ease of use. It includes a backlit touch panel display providing a high level of on screen visibility for the operator. Has Yaesu's AMS capability to recognize either digital or FM analog signals.

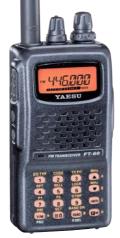


- · 5 Watts output at 7.4 VDC.
- · System fusion compatible.
- C4FM digital V/D mode, voice FR mode, data FR mode and conventional FM.
- · 700 mW audio.
- Snapshot function with image data display on LCD and transmitting image data capability.
- Built-in high sensitivity 66 channel GPS with antenna.
- Backtract function to return to starting point.
- Smart navigation function.
- 1200 bps 9600 bps APRS built-in.
- 1245 memory channels.
- Wideband receive capability 0.5 - 999 MHz (USA cellular blocked).
- · AF dual monitor capability.
- Has micro SD card slot with GPS logging to SD card.
- High capacity lithium-ion battery



FT-60R 2 m / 70 cm

Extensive Receive Frequency Coverage



# Emergency Automatic ID for Search & Rescue

Receives 108-520 MHz and 700-999 MHz (cellular blocked) for monitoring amateur, public safety, business, marine, aircraft, government communications.

- Tough die-cast, water resistant construction.
- 1000 memories w/alphanumeric labels.
- 5 Watt output.
- CTCSS and DCS (encode/ decode) with split tone; DCS encode only capable.
- ARTS™.
- · One-touch to NOAA.
- · Nine DTMF auto-dial memories.
- WIRES™ Internet linking.
- Huge LCD display.
- Two front panel programmable kevs.
- · Automatic repeater shift.



The world's smallest dual-band HT has up to 1.5 W of output power (up to 3 Watts w/external DC power supply - optional). It's your gateway to VHF, UHF, shortwave broadcast, marine and aircraft bands or WIRES-II™ Internet linking.

- Covers 500 kHz to 999 MHz (cellular blocked).
- · 1286 memories.
- · AF dual monitor function.
- 3 Watts out on 2 m when on external DC.
- · Mechanical dial lock.
- Auto Range Transponder System (ARTS™).
- Exchange text messages with another VX-3R or FTM-10R.
- Frequency counter operation.
- Emergency automatic ID function..
- · Optional "AA" battery case..
- CW learning and training feature.

Questions?
Call a
friendly Ham
at HRO.

## FT-1DR-HD 2 m / 70 cm

**\$CALL** 

HRO Discount Price

The FT-1DR uses 12.5 kHz C4FM FDMA digital modulation mode to enable high speed data communication and reliable voice communication with strong error correction performance. C4FM FDMA provides 9.6 kbps data baud rate speed.



- 2 m / 70 cm.
- GSM (group short message).
- Digital ARTS, USB connector.
- E-GPS, GPS data transfer. 1200 / 9600 bps APRS® data communication.
- Wide receive capability.
- Large dot matrix LCD and Illuminated keyboard..
- · Built-in GPS antenna.
- Three digital modes (V/D mode, voice FR mode, data FR mode) and an analog mode. V/D mode is voice and data communication in the same time frame.
- Automatic mode select function detects the receive signal mode.
- Real dual band operation (V+V / U+U / V+U). AF dual control.
- Snapshot picture taking ability with optional MH-85A11U speaker mic.
- Preset receiver function NOAA weather, marine, shortwave.
- · Micro SD card slot.
- Up to 5 Watts of reliable power output.
- Includes FNB-102LI high capacity battery, providing up to 8 hours of typical 5 W operation.

Extended Warranties Available for Yaesu. See Page 41.



## SINGLE BAND HANDHELDS



The FT-270R is a compact. high-performance FM handheld providing up to 5 Watts of RF power, along with big audio output (800 mW). Protected against water ingress to IPX7 specifications (submersion for up to 30 minutes at a depth of 3 feet). Features long operating time using the supplied 1400 mAh NiMH battery pack, 16-key direct keyboard frequency entry and direct DTMF input with quick, one-touch access to Yaesu's WiRES-II™ VoIP Internet linking system!

- TX: 144-148 MHz; RX: 136-174 MHz.
- 5 Watts with power levels hi/ med/ low.
- · ARTS™ System.
- · Automatic repeater shift.
- 200 memory channels.
- Ten memory banks for channel allocation.
- · CTCSS / DCS included.
- Smart Search™ memories.
- Ten memory banks for channel allocation.
- Adjustable TX deviation level.
- · RF Squelch.
- · Battery voltage display.

FT- 277 70 cm



The FT-277R is a compact, high performance FM handheld providing up to 5 Watts of RF power, along with big audio output (800 mW). It is protected against water ingress to IPX7 specifications (submersion for up to 30 minutes at a depth of 3 feet).

It is supplied with a 1400 mAh NiMH battery.

The unit includes direct keyboard frequency entry and direct DTMF input along with quick one-touch access to Yaesu's WiRES-II™ VoIP internet linking system.

- Full 5 Watts FM 430-450 MHz.
- · Large backlit LCD display.
- · 200 memories.
- Submersible construction.
- · Power saving circuit design.

Extended Warranties Available Compact with High Performance

> FT-252 2 m

FT-257 70 cm

\$CALL HRO Discount

The FT-252 for 2 m and FT-257 for 70

cm are compact, simple-to-operate handheld radios that provide up to 5 Watts of RF power, along with loud audio output (800 mW). The radios are ruggedly constructed with a water resistant body and sealed tight to meet IPX5 protection requirements.

- Compact size Case size 2.45" (W) x 4.74" (H) x 1.52" (D) without knob, antenna, and belt clip.
- Light weight 9.9 oz with furnished battery, antenna, and belt clip.
- Large LCD display new ergonomic design and large backlit LCD display for better operation.
- 5 Watts of reliable RF power RF power output 5.0 W (High) / 2.0 W (Middle) / 0.5 W (Low) (@7.4 V).
- Loud audio 800 mW of loud audio for noisy field operations.
- Wide frequency range FT-252: RX 136 - 174 MHz; TX 144 - 148 MHz. FT-257: RX 400 - 480 MHz; TX 430 - 450 MHz
- Password protection keypad / dial / PTT lockout.
- 200 memory channels for serious users
- Smart search for selecting active channels.
- CTCSS (50 tones) and DCS (104 codes) encode / decode, with split tone and DCS encode-only capability.
- · Nine DTMF auto-dialer memories.
- Lots of scanning mode flexibility: VFO / memory / PMS / dual watch.
- Emergency operation (alarm, flash, Morse code message).

## Programming Kits

## To Program HF:

ADMS-4AU FT-817 ADMS-4BU FT-857/897 ADMS-450 FT-450D ADMS-DX1200 FTdx1200 ADMS-DX3000 FTdx3000

## **To Program Mobiles:**

ADMS-1900 FT-1900 ADMS-2H FT-8900 ADMS-2I FT-8800 ADMS-2J FT-2800 ADMS-2K FT-7800 ADMS-2900 FT-2900 ADMS-M400 FTM-400DR ADMS-7900 FT-7900

## To Program Handhelds:

ADMS-1J FT-60R ADMS-270 FT-270 ADMS-VX3 VX-3R ADMS-VX6 VX-6R ADMS-VX8 (not VX-8GR) ADMS-FT1D FT-1DR

## **Bluetooth®**

## BU-2 Bluetooth® Radio Unit

\$CALL - HRO Price

Yaesu has updated their BU-1. The new version provides 8 pairing channels and operates with 30 percent less power. Features PTT and VOX. Supported products: VX-8DR, FTM-10R, FTM-350AR and the new FTM-400DR.





## **ACCESSORIES**

## The radio

HANDHELD ACCESSORIES	Model	60R	270R 277R	VX- 3R	VX- 6R	FT- 1DR	VX- 8DR	HRO Discount Price
Microphone Adapter	CT-44	•		•		•		\$16.95
Microphone Adapter	CT-91		•		•			\$17.95
Microphone Adapter	CT-131						•	\$32.95
VOX Headset	VC-24		•		•			\$59.95
VOX Headset	VC-25	•		•		•		\$62.95
Speaker/Microphone	MH-34B4B	•		•		•		\$34.95
Speaker/Microphone	MH-57A4B		•		•			\$27.95
Speaker/Microphone	MH-73A4B		•		•			\$47.95
Speaker/Microphone	MH-74A7A						•	\$64.95
Ear Piece Microphone	MH-37A4B					•		\$33.95
Ear Phone	FEP-10	•		•				\$9.95
DC/DC cigar adapter	SDD-13	•	•		•	•	•	\$27.95
DC/DC adapter	EDC-6	•	•		•	•	•	\$8.95
Wall Charger 117 VAC	PA-48B	•	•		•	•	•	\$28.95
Rapid Charger	CD-15A				•			\$39.95
Charger Cradle	CD-26		•					\$25.95
Charger Cradle	CD-41						•	\$37.95
Desk Top Rapid Charger	VAC-370	•	•					\$79.95
Battery 1400 mAh	FNB-80LI				•			\$69.95
Battery 1000 mAh	FNB-82LI			•				\$32.95
Battery 1300 mAh 7.4 V	FNB-83	•	•					\$35.95
Battery 1100 mAh 7.4 V	FNB-101LI					•	•	\$59.95
Battery 1800 mAh 7.4 V	FNB-102LI					•	•	\$69.95
Battery case AA batteries	FBA-23				•			\$29.95
Battery case AA batteries	FBA-25	•	•					\$18.95
Battery case AA batteries	FBA-37			•				\$18.95
Battery case AA batteries	FBA-39					•	•	\$31.95
Cloning Cable	CT-27	•		•	7			\$14.95
Cloning Cable	CT-134	9 J	<u>(</u>				•	\$32.95
Ant Adapt SMA - BNC	CN-3	•	•	•	•	•	•	\$8.95
Radio Case (soft)	CSC-91		Ţ		•			\$16.95
Radio Case (soft)	CSC-92			•				\$16.95
Radio Case (soft)	CSC-93						•	\$16.95
Radio Case (soft)	CSC-95							\$12.95
Barometric pressure sensor	SU-1				•			\$36.95
GPS Antenna Unit	FGPS-2						•	\$74.95

## Extended Warranties available for Yaesu.

## Yaesu Handhelds

### Pwr Power Current Drain Height Width in Depth Weight HRO Model Sensitivity Frequency Mode Supply Out **Transmit** Receive in (cm) (cm) in (cm) oz (g) Price FT-60R 2m/70 cm FM 7.2 VDC 5 W 1.5 A 125 mA .16 μV / 12dB 4.3 (10.9) 2.3 (5.8) 1.2 (3.0) 13.5(370) CALL 120 mA VX-3R 2m/70 cm @# FM 3.7 VDC 1.5W†† 1.3 A .16 μV / 12dB 3.2 (8.1) 1.9 (4.7) 0.9(2.3)4.6(130) CALL VX-6R 2m/70 cm @# FM 7.4 VDC 5 W 1.5/1.6/1.8 A 150mA .16 µV / 12dB 3.4 (8.7) 2.3 (5.8) 1.1 (2.8) 9.5(270) CALL VX-8DR 50/144/220/440MHz#@ FM/AM 7.4 VDC 5 W \*\*\* 1.9 A 240mA .16 µV / 12dB 3.7(9.5) 2.4 (6.0) 0.9(4.2)8.5(240) CALL FT-1DR FM/AM 7.4 VDC 5 W \* 1.7A 240mA .16 µV / 12dB CALL 2m/70 cm 3.7(9.5) 2.4 (6.0) 1.1(2.8) 9.3(265 FT-2DR FM/AM 1.2 (3.2) 2m/70 cm 7.4 VDC 5 W 4.3 (10.9) 2.4 (6.2) 10.9(310) CALL FT-270R 144-148 MHz# FM 7.2 VDC 5 W 1.5 A 165mA .16 µV / 12dB 4.7 (12.0) 2.4 (6.0) 1.3 (3.2) 13.8 (390) CALL FT-277R 430-450 MHz FM 7.2 VDC 5 W 1.5 A 165mA .16 μV / 12dB | 4.7 (12.0) 2.4 (6.0) 1.3 (3.2) 13.8 (390) CALL

\*Power output can be increased depending on the battery pack selected. #Extended Rx range @Cell phone blocked. \*\*2 and 6m 4.5 W UHF. †11.5 W 2m/1 W UHF. \*\*\*1.5 W on 220 MHz

## **HF Amp & Power Supply**



## Quadra System

**\$CALL** HRO Price

Here's all the linear amplifier you should need for operation on both HF (160 - 15 meters) and 6 meters. It is designed for automatic band switching with the FT-450, FT-950, FT-2000, FT-1000D, FT-1000MP, FT-920, FT-990 and the FT-900 HF radios. The amp features 8 MRF150 power MOSFET transistors designed into 4 units of 2 transistors in a push-pull circuit at 48 VDC.

The included external power supply, the VP-1000, allows for easy installation. There are two input voltages, 117 VAC or 220 VAC. Output power is a function of the power supply voltages. At 220 VAC there is 1000 Watts out on HF and 500 Watts on 6 meters. At 117 VAC the output is 500 Watts on HF. The amplifier comes with a built-in high speed antenna tuner with four antenna outputs and two inputs. The multifunction omni-glow LCD display shows the status of the amplifier. There is automatic system monitoring with VSWR protection.

## **Power Supplies**

FP-1030A \$CALL HRO Price

The FP-1030A is a regulated linear supply at 25 amps and in-

cludes meters.



## FP-1023A \$CALL - HRO Price

The FP-1023A has 23 amps continuous and 25 intermittent. This low-profile switching power supply operates on 110 or 220 VAC.

## **SOFTWARE DEFINED RADIOS**

## Aero Stream Communications

## SDR MW-HF

## **General Coverage Communications Receiver**

\$599.95 - HRO Discount Price





### User Configurable Band Key:

- Amateur band selections: 160 m 10 m.
- International broadcast bands 120 m 11 m AM-SSB-CW.
- Manual or auto-mode selection (based on tuned frequency)
- LW: 150 500 kHz is included for experimental purposes.

## VHF-UHF General Frequency Coverage and Performance:

- VHF: continuous coverage: 64.0 260.0 MHz
- UHF: continuous coverage: 437.0 512.0 MHz.
- FM broadcast: nominal -88 dBm in 200 kHz bandwidth.
- VHF sensitivity 108.0 150.0 MHz: nominal - 98 dBm (or better) for 12 dB SINAD, 15 kHz filter bandwidth (5 kHz deviation).
- UHF sensitivity: nominal -86 to-98 dBm for 12 dB SINAD, 15 kHz filter bandwidth (5 kHz deviation).

### VHF-UHF Band Plan:

- FM broadcast: 87.7 107.9 monaural 5 kHz audio bandwidth (76.0 MHz international).
- Aircraft bands: 108.000 136.975 MHz, AM auto-select -25 kHz channel steps.
- Amateur: 2 m, 1.25 m, 70 cm (upper portion starting @ 437.0 MHz).
- NBFM mode default with SSB-CW mode selects
- Marine & NOAA weather radio
- Public service: 137.0 225.0: 12.5 and 25 kHz steps.
- FRS-GMRS 462 467 MHz, 25 kHz steps.
- · General Coverage 467-512 MHz.

### **Receiver Architecture:**

- HF: dual conversion (VHF-UHF: single conversion) with low -IF, I-Q digital sampling, 32-bit DSP with digital audio CODEC.
- DSP demodulation algorithms: DSB-AM, SSB, CW, WBFM, NBFM.
- User selectable, DSP fixed bandwidth channel filtering selections.

## Audio System - Digital CODEC:

- · Speaker driver: 0.8 W into 8 Ohm load.
- Internal 2.5" diameter, mylar-cone communications grade speaker.
- External monaural speaker jack (3.5 mm stereo jack - back panel).
- Headset Driver: 40 mW into 16 Ohms. (3.5 mm stereo jack front panel).

### · Antenna Inputs:

- LW-MW-HF port: 50 Ohm BNC (female)
- VHF-UHF port: 50 Ohm BNC (female).

 LW-MW-HF Port: 1000 Ohm – 3.5 mm jack – retained S/N's 601-749. Eliminated starting with S/N 750.

### Display:

 1.5" diagonal - 64 x 128 OLED display with EMI-filtered lens. Readable outdoors (not in direct sunlight) and manually dimmable.

### **Power Supplies:**

- Power Jacks: powered-USB and 6-18 VDC (2.1 mm diameter-center pin (+) x 5 mm diameter barrel).
- · Internal lithium-ion rechargeable battery.
- 6-8 hour capacity with full speaker volume.
- 10-12 hours for headset and normal speak-
- Both supply inputs automatically charge the optional internal battery with the radio powered ON or OFF.

### **Power Consumption:**

- < 1.0 Watt headset and normal speaker volume.</li>
- < 1.2 Watt maximum full speaker volume.</li>

### USB Mini-B 2.0 Jack:

 Automatically charges internal battery while maintaining maximum USB power use < 2.5 Watts

- Software updates via 'Dropbox' with automated email notifications.
- · I-Q data and radio controls via USB port.
- CommRadio supplied basic 200 kHz spectrum-scope PC GUI (graphical user interface).

### Mechanical:

- Overall size: 5.65" W x 2.45" H x 6.10" D (including knobs, jacks, feet).
- Weight: 1 lb. 8 oz.

### **ESD Protection:**

 ESD diodes on antenna port(s), power jacks, USB port, keys, and knobs.

### **Hardware Design Limitations:**

 LW (150 kHz - 480 kHz): Designed to tune down to 500 kHz. The tuner is programmed to provide tuning to 150 kHz. However, there is no dedicated pre-selector in this range. The IF is also in this range and signals from other bands can be heard. Performance is not guaranteed in this range and is provided for experimental purposes. Good performance has been reported from one owner who uses an external LW pre-selector.

Designed and manufactured in USA. Limited 1 year warranty: parts, labor, workmanship.



# High Performance 16 bit SDR on the Network HRO Price \$CALL



## Wideband Digital Radio – NetSDR

The NetSDR radio is a high performance networked SDR with 1.6 MHz bandwidth. The NetSDR uses a high performance 80 MHz, 16 bit ADC with both dithering and randomization for best performance. The output I/Q bandwidth is configurable via software. PC communications are handled over a 100 base-T port using 24 or 16 bit I/Q words.

The NetSDR is a complete plug and play solution. As opposed to other SDRs in the market, there is no need for additional preamplifiers, preselectors or code development. The unit is compatible with the Moetronix SpectraVue™ and SDR-Radio software that will have you up

and running in minutes. The software includes analog and digital mode demodulation and I/Q capture of spectrum at up to a 1.6 MHz bandwidth. The SDR radio software allows the use of the NetSDR over the Internet. The full 1.6 MHz waterfall and demodulation audio can be transported via a 5 KB/s link.

NetSDR packets are fully routable. This means that the receiver can be placed at remote locations. Multiple receivers can also be combined and its data transported over a higher data rate ethernet pipe using simple switches and routers. In this application, each NetSDR can be set to a different IP address or port.



SWL GPS

## GRUNDIGetón



## Emergency Radio

**FRX-3** \$59.95 – HRO Price

This all-purpose, rechargeable weather alert radio with solar panel and hand turbine power generator will keep you in the know, on alert, and well connected. No emergency kit is complete without it.

When the "Alert" function is on, the radio will automatically broadcast emergency weather alerts for your area such as hurricanes, tornadoes and severe storms.

The digital radio covers AM / FM / NOAA weather band. There's an alarm clock and an AUX-input to play your own tunes on the speaker or headphones.

The FRX3 powers up via several options. Crank the hand turbine for one minute and you'll produce enough power for 15-20 minutes of music, news and weather. Or simply charge it in the sun using the built- in solar panel. Or use the mini USB cable to charge the FRX3's built-in rechargeable battery or pop in a couple of AAA batteries. To charge your smartphone, simply plug it into the USB port. Power will automatically "dump charge" to your phone, just like plugging into the wall.

The FRX-3 has a bright LED flashlight, red flashling beacon, and a glow-in-the-dark locator.



## Satellit 750

\$279.95 - HRO Price

When you want full shortwave capabilities and a classic design, choose the Satellit 750. Advanced DSP technology and a 360-degree rotating AM antenna enhance the radio's sensitivity. Listen to AM, FM, shortwave with SSB, and aircraft band. Program up to 100 choices. You can connect your MP3 player for even more options.

- AM, FM, aircraft band (117-137 MHz) and shortwave (1711-30000 kHz).
- Set 9/10 kHz AM tuning; set FM tuning range.
- · Single side band (SSB).
- Using DSP technology to enhance the highest sensitivity and selectivity with excellent S/N ratio and antiinterference results in good reception sound quality.
- 360 degree rotating AM antenna.
- Auto / manual / direct frequency key-in and station memory tuning.
- · Dual alarm clock function.
- Mute function.

- · 12K AM output socket.
- Auto tuning storage function (ATS) for FM/AM/shortwave.
- 100 station memories (each band 100 memories, 500 customizable).
- Line in socket (can be used as a speaker for MP3 players).
- Line out socket (radio broadcasting can be transferred to other devices).
- External antenna jacks for both AM and FM.
- USB (5 V) outlet for MP3 or mobile phone charging function.
- AC/DC 6V power supply included.



G3 Global Traveler

\$79.95 - HRO Price

The Global Traveler G3 is an AM / FM / shortwave receiver with aircraft band, SSB (150-30000 KHz), RDS (Radio Data System) and Synchronous Detector. (118-137MHz).

- Dual conversion PLL digital tuner with digital LCD display showing frequency, time, sleep time and symbols for sleep time and alarm activation.
- 700 randomly programmable memories for all frequencies.
- · Compact and light weight design.
- · Synchronous detector with selectable side band.
- · Clock, sleep times, alarm function.
- · 3.5 mm headphone jack (earphones not included).
- Digital radio data system (RDS) on FM shows frequency, call letters, song title, date, and messages on the display when available.
- Telescoping antenna for FM and SW.External jack for SW, FM, aircraft band antennas.
- Power source is 4 AA batteries (not included).

## **Global Positioning**

# **AVMAP**

ATELLITE NAVIGATION



## Geosat 6 APRS®

## The GPS Solution for APRS® Operations

Geosat 6 APRS® has a metal chassis, a 4.8" full color display in 16:9 widescreen format and a magnetic mount for easy mounting in the car. It has a 50 channel –160 dbm tracking sensitivity u-blox GPS engine for fast and highly accurate fix.

New navigation functions include "Trip Computer" that shows overview of the journey, with speed graphs, info about average speed, highest speed reached, stop time etc. Turn-by-turn vocal instructions announce complete street names thanks to the Text-to-Speech technology.

Geosat 6 APRS® provides GPS location information for your transmitted APRS® beacons, and it shows received APRS® information on its map displays. It can store up to 1000 APRS® contacts and display them on the map. Set your Geosat 6 APRS® to navigate to your favorite APRS® mobile station and get rerouting instructions when the new position is reported!

Watch APRS® activity on the screen to distinguish between fixed and mobile APRS® stations. Used with a Kenwood D710G/A and set in the KENWOOD format sentence, the Geosat 6 APRS® supports standardized APRS® icons.

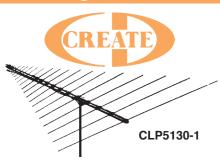
Geosat 6 APRS® fully takes advantage of the Kenwood format sentence. The Tactical mode allows you to select an APRS® contact to see on the full info page its speed, course and altitude in addition to its call sign and position.

The Geosat 6 APRS® comes with a Kenwood-ready cable and exclusive APRS® bi-directional RS-232 APRS® interface compatible with ALL current APRS® ready Kenwood radios.

## **SWL/SCANNER ANTENNAS**

## **BOOKS**

## **Log Periodic**



The CLP5130 antennas are high gain, wide band VHF/UHF log periodic beams for horizontally polarized base station use. Covers amateur bands from 50–1300 MHz, FM broadcasting, scanning, VHF / UHF TV, air band communications, government and business bands.

Forward gain is 10 to 12 dB – 10 to 16 times the gain of a nondirectional discone type antenna. The VSWR is less than 2.0:1 across the band. The high-quality aluminum antennas have a boom design that allows movement of the phasing line. Distortions in the vertical and horizontal planes are minimized and element adjustment is not necessary. The boom-to-mast bracket is made of a lightweight and rugged magnesium alloy.

## **Create Antennas**

	CLP	CLP
	5130-1	5130-2
Frequency	50-1300	108-1300
requericy	MHz	MHz
No. Elements	23	19
Power PEP	500W	500W
Forward Gain	10-12 dBi	10-12 dBi
Front/Back	15 db	15 db
Longest	9' 10"	4' 6"
element	9 10	4 0
Boom length	5' 9"	4' 6"
HRO Price	\$459.95	\$369.95

## Wideband



## D-130J / D-130NJ Super Wideband Discone

Monitor 25-1300 MHz. Transmit on 50, 144, 430, 1200 MHz.

All stainless steel. Input power 200 Watts maximum.

Impedance: 50 ohms. VSWR:

1.5:1. Length: 1.7 meters. Mounts on 1" to 2" masts. D-130 UHF and D-130NJ Type-N connector.

HRO Prices D-130J \$94.95

D-130NJ \$95.95



**SWL Antennas** 

## ALPHA DELTA



### **DX-SWL**

The DX-SWL is tuned for the most popular SWL bands (13, 16, 18, 19, 21, 25, 31, 41, 49, 90 and 120 meters). It can be used as a multi-band transmit antenna with the appropriate antenna tuner. Length is 60 feet. Requires a single support. Standard coax connects antenna to your radio. Feed point is 50 ohms. SO-239 connection. **HRO Price \$119.95** 

### **DX-ULTRA**

The multi-element DX-ULTRA has extremely low-noise performance. Tapered wing design allows broadband operation. Configure as dipole, inverted vee, or sloper. Covers MW, tropical, SW, government, military, embassy, maritime, aircraft, and commercial frequencies. 80 feet long. Made with ISO-RES inductors and parallel wire elements. Uses the Delta-C center insulator, Delta-CIN end insulators, and 12 gauge solid copper wire with grey PVC insulation. Elements are separated by grey PVC rod. HRO Price \$159.95

## Wideband Mobile

## SCANNER MASTER

## Spectrum Force Mag Mount Mobile

This wideband antenna comes with a BNC or SMA connector. Covers 25-1300MHz. Height is 17" including base. BNC fits most scanners.

**HRO Price \$19.95** / BNC **HRO Price \$19.95** / SMA

## **Call for Quotes**

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

## **SWL Guide**



Worldwide
Listening
Guide
5th Edition
by John Figliozzi

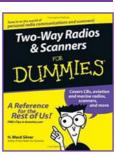
The expanded 5th Edition WLG explains radio listening in all of today's formats — "live," on-de-

mand, WiFi, podcast, terrestrial, satellite, internet, digital, and, of course, AM, FM and SW. Includes a comprehensive program guide to what can be heard how, when, and where. Spiral bound to open in a flat, easy-to-use format. **HRO Price \$24.95** 

## **Scanner Books**

Two-Way Radios & Scanners for Dummies

HRO Price \$21.99



HRO stocks many books with frequencies for localities around the country. Contact your nearest HRO for details.

## **Scanner Software**

## BuTel

Scanner software is essential for the proper programming of today's complex scanners. Butel's user-friendly Basic software allows for programming and, with the PRO versions, control and logging for scanners. Limited versions offer programming only at a special price. Auto-download frequencies and trunking with a RadioReference subscription for most versions. Requires Windows 98 or later.

 HRO Prices
 Basic version
 (B)
 \$39.95

 Pro version
 (P)
 \$69.95

 Limited version
 (L)
 \$29.95

### **Uniden Bearcat Software**

ARC-XT (B) (P) BC346XT, 396XT, 15XT, 996XT

ARC996 (B) (P) Bearcat BCD-996T

ARC396 (B) Bearcat BCD396T

ARC996 (B) (P) Bearcat BCD-996T
ARC396 (B) Bearcat BCD396T
ARC246 (B) Bearcat 246T
ARC330 (B) (P) Bearcat BR330T
ARC250 (B) (P) BC250, 296, 785, 796
ARC780 (B) Bearcat 780XLT

**AOR Receivers** ARC8200V2

Icom Receivers

ARC2 R-2 \$29.95 ARC3 R-3 \$39.95

AR8200V2 \$69.95

# uniden®



## BCD-536HP

## TrunkTracker V Mobile

\$599.95 - HRO Price

- APCO 25 Phase I / II.
- Motorola, EDACS, LTR trunking.
- HomePatroloperation.
- WiFi Link for remote operation.
- USA / Canada radio database.
- Zip Code selection.
- Fire tone-out alert.
- Temporary avoid.
- CloseCall® RF cap-
- System channel/number tagging.
- DCS / CTCSS rapid decode.

- · Audio AGC.
- S.A.M.E weather alert.
- Backlit keypad & LCD.
- 4 GB memory.
- Enhanced dynamic memory.
- USB connectivity.
- PC programming and cloning.
- Covers 25-512, 758-824, 849-869, 894-960, 1240-1300 MHZ.
- Includes antenna, DCadapter, USB cable, three-wire harness, mounting bracket and hardware.

## **Mobile Trunking Scanner** with GPS Support and APCO-25





## BCD-996P2

- · 25,000 dynamically allocated channels.
- · Location-based scanning.
- · TrunkTracker V.
- · APCO 25 Phase I & II.
- · Links to optional GPS.
- Dual color display.
- · Multi-site trunking support.

## **\$CALL** - HRO Price

- Temporary lockout.
- Dangerous crossing or road and POI alert.
- · DIN-E mounting.
- · Close-Call™ RF capture technology.
- · Public safety scanner.
- · PC control/programming (free download).
- · USB connector.

## **BearTracker Mobile Trunking** Scanner with GPS Support



### BC-T15X

- · Frequency coverage 25-512, 758-960 (cell band blocked), 1240-1300 MHz.
- 2500 dynamically allocated channels.
- · Up to 400 systems. · Location-based scan.
- · TrunkTracker III.

- **\$CALL** HBO Price
  - 100 system quick keys. BearTracker<sup>™</sup> warning system.
  - Close Call™ RF capture technology.
  - Dangerous crossing, dangerous road and POI alert.
  - · Public safety scanner.

## **Mobile Scanners**

## Home Patrol II **\$CALL** - HRO Price



- · Digital touch screen scanner.
- USA & Canda database.
- APCO Project 25 Phase I & II.
- USB-source charging.
- No subscription.
- Simple programming



- · Enter your zip code to selects channels in your area.
- 3.5" daylight viewable display.
- · Sentinel Windows PC software included.
- · S.A.M.E. emergency / weather alert.
- TrunkTracker IV.
- · Monitor public safety, local government, amateur radio operators, and more.



## **Home Patrol** \$CALL - HRO Price

- · Enter your zip code to see a list of agencies you will hear in your local area.
- · Hear emergency calls, weather, spotters, and public safety activities.
- Touch screen entry on 3.5 inch LCD screen.
- · AM / NFM / FM.
- · 4 NiMH 2300 mAh batteries included.
- · While on the road you can monitor road and traffic conditions through local agency broadcasts.
- · Plug in an optional GPS to monitorchannels wherever you are.
- Portable battery operation.
- Covers 25-53.995 MHz. 136-512 MHz. 758-960 MHz.
- MicroSD type memory slot.

More info@ www.hamradio.com

## BCD-325P2 TrunkTracker V Handheld **\$CALL HRO Price**

**SCANNERS** 





- APCO P25 Land II.
- 25.000 channels.
- Close Call™ capture.
- Band Scope
- Temporary lockout.
- Location-based scanning.
- Channel number tagging.
- DCS / CTCSS rapid decoding.
- Audio AGC.
- S.A.M.E. weather alert.
- · Backlit keypad & LCD.
- Dynamic memory.
- Narrowband reception.
- · 12 service searches: public safety, news, ham radio, marine, railroad, air, CB radio, FRS / GMRS, racing, FM broadcast and itinerant.
- · PC programming and control (with 3rd party software, not included).
- Frequency coverage: 25-512 MHz, 758-824 MHz, 849-869 MHz, 894-960
- Includes: batteries, antenna USB cable, hand strap, and owner's manual.

## BCD-436HP TrunkTracker V Handheld \$499.95 HRO Price

- APCO 25 Phase I / II.
- HomePatrol operation. 4 GB memory.
- USB connectivity.
- CloseCall® RF capture.
- Audio AGC.
- S.A.M.E weather alert. Backlit keypad & LCD.
- Motorola, EDACS, LTR trunking.
- USA/Canada radio database.
- Enhanced dynamic memory.
- System channel / number tagging.
- DCS/CTCSS rapid decode.
- PC programming and cloning.
- Covers 25-512, 758-824, 849-869, 894-960, 1240-1300 MHZ,
- Includes antenna, USB adapter, 3AA NiMH batteries, hand strap, SMA-BNC antenna adapter.







## WHISTLER

## WS1010

## Analog Handheld Scanner

HRO Price \$99.99

- · 200 channels.
- Service banks: easily locate types of calls by searching preprogrammed marine, fire, police, aircraft, ham, and weather banks.
- · SKYWARN.
- Spectrum sweeper.
- Data cloning, PC programmable and priority channel.
- SAME / FIPS weather alert
- 13 preset data filters plus two user presets.

### BANDS RECEIVED

29-54 MHz	VHF Lo
108-136.99166 MHz	Aircraft
137-174 MHz	VHF Hi
380–512	UHF Bands

# WS1025 Analog Desktop Scanner HRO Price \$99.99



- · 200 channels
- Service banks: easily locate types of calls by searching preprogrammed marine, fire, police, aircraft, ham, and weather banks.
- · SKYWARN.
- · Backlite LCD display
- Tune: find new and unlisted frequencies starting from a specified frequency.
- · SAME / FIPS weather alert.
- Data cloning, PC programmable and priority channel.

### BANDS RECEIVED

29-54 MHz	VHF Lo
87.3-107.9 MHz	Commercial FM
108-136.99166 MHz	Aircraft
137-174 MHz	VHF Hi
380-512	UHF Bands

## Analog Desktop Scanner

## WS1065

HRO Price \$399.99



- · Object oriented user interface.
- Menu driven programming with contextsensitive help.
- SKYWARN.
- · Multi-system trunking.
- · High speed PC interface.
- SAME / FIPS weather alert.
- · Spectrum wweeper.
- · Automatic adaptive digital tracking.
- · Used as mobile or desktop.
- •12-volt wiring harness and DIN-E adapter shell incluided.

### BANDS RECEIVED

29-54 MHz	VHF Lo
108-136.99166 MHz	Aircraft
137–174 MHz	VHF Hi
216-225 MHz	VHF, Ham
225-406 MHz	Gov't, Military
406-512 MHz	UHF
700 Bands	Public Service
800/900 Bands	Public Service
1240-1300 MHz	Ham

## **Digital Scanner**

## WS1040

## Digital Handheld Scanner

HRO Price \$399.99

- Object oriented user interface
- Menu driven programming with context sensitive help.
- · SKYWARN.
- Multi-system trunking.
- High speed PC interface.
- SAME / FIPS weather alert.
- Spectrum sweeper.
- Automatic adaptive digital tracking.
- Digital AGC.

## **Digital Scanner**

## WS1080 Digital Handheld

Scanner HRO Price \$499.99



- Easy to understand user interface.
- Complete radio reference USA and Canada database on microSD. 200 scanlists.
- Built-in discriminator outnut
- Upgradeable CPU firmware, DSP firmware and library.
- Full USB interface.
   Multi-system trunking.
- SAME / FIPS weather alert. SKYWARN.
- Spectrum sweeper.
- Built-In clock / calendar.
- · Automatic adaptive digital tracking.

## WS1080 Bands

## SPECTRUM SWEEPER

25-54 MHz	VHF Low Band
108-137 MHz	VHF Aircraft Band
137-174 MHz	VHF High Band
216-300 MHz	220 MHzCommercial/ Amateur Band
300-406 MHz	UHF Military Air Band
406-470 MHz	UHF Band
470-512 MHz	UHF-T Band
764-782 MHz	700 MHz Band
791-797 MHz	700 MHz Band
806-869 MHz	800 MHz Band
894-1300 MHz	900 MHz Band, 23 cm Amateur Band

### WS1040 Bands

## BANDS RECEIVED

DANDST	CECTIVED
29-54 MHz	VHF Lo
108-136.99166 MHz	Aircraft
137–174 MHz	VHF Hi
216-225 MHz	VHF, Ham
225-406 MHz	Gov't, Military
406-512 MHz	UHF
700 Bands	Public Service
800/900 Bands	Public Service
1240-1300 MHz	Ham



## PACKET / DATA / APRS

## Farallon Electronics



## **PACTOR-4 DR-7400**

HRO Price \$1498.00

The DR-7400 offers a lower priced entry to the P4dragon modem class. The DR-7400 has been optimized for use with the new high-end data transmission mode PACTOR-4.

The DR-7400 is software compatible to the PTC-II series and to the DR-7800 so that existing PACTOR software (AirMail, RMS Express, Alpha etc) can continue to be used.

Due to the plug compatibility of the radio ports, a change from the tried and tested PTC-II technology to the innovative P4dragon technology is very easy. Change over the plugs, turn on, and enjoy PACTOR-4!

- · Has many of the same features as the DR-
- Backwards compatible to PACTOR-1/2/3. Automatic negotiation during link setup.
- Noticeably improved reception with PAC-TOR-2 and PACTOR-3.
- Operating Modes: PACTOR-4, PACTOR-3. PACTOR-2, PACTOR-1, weather-FAX (receive), GPS / RTTY / NAVTEX decoder.



## **PACTOR-4 DR-7800**

HRO Price \$1849.95

The DR-7800 P4dragon is the no compromise further development of the leaendary PTC-II, which was designed for professional use and for the ambitious amateur radio enthusiast. The DR-7800 has been optimized for use with the new high-end data transmission mode PAC-TOR-4.

The DR-7800 is software compatible to the PTC-II series so that existing PAC-TOR software (AirMail, RMS Express, Alpha etc.) can continue to be used.

- · Operating Modes: PACTOR-4. PAC-TOR-3, PACTOR-2, PACTOR-1, weather-FAX (Receive), GPS decoder.
- · Display: 256 x 64 pixel OLED, blue, high contrast, excellent readability, no viewing angle problems, display of spectrum and much more.

### **PACTOR-4**

LIDO

- · Max net speed 10500 bps.
- 1.5-3 x faster than P3.
- · Backwards compatible.
- 2400 Hz bandwidth.
- · Highly adaptive.
- Highly resistant to interference.
- · 6 auto notches.
- Adaptive equalizer.

## PTC-Illusb

HRO Price \$1149.95

As successor to the beloved PTCIIusb it is mainly designed for PACTOR-III, thus allowing worldwide E-mail traffic via shortwave. It is also suitable for all other available modes, e.g. with Packet Radio, RTTY, weather FAX reception or decoding CW.

The PTC-Illusb is software compatible to the PTC-Ilusb so that existing software (AirMail, RMS Express, Alpha etc.) can continue to be used.

The PTC-Illusb is not only an excellent HF-modem but also a powerful multimode controller. It supports the following modes: PACTOR-I/II/III, PR, (also RPR), RTTY, CW, PSK31, FAX, SSTV, AM-TOR, NAVTEX, APRS®-Beacon.

Remote control your transceiver directly from the PTC-Illusb for really comfortable operation. The PTC-Illusb TRX interface is compatible with equipment from Icom. Yaesu. SGC. and Kenwood.

### **PACTOR-III** as standard

- · Widespread proven technique (Winlink, SailMail
- Automatic frequency correction.
- Max. 5200 bps net.
- High adaptivity.
- High interference immunity.
- Max 2400 bandwidth.



Get on the Air with **HF Digital** 

Explore digital radio below 30 MHz! Here is a step-by-step guide that'll get you started. Written in an easy to understand, conversa-

tional style, this book will show you how to set up and operate your own HF digital station. It's a fun and easy way for beginners to get on the air! Let's **Build an HF Digital Station** 

Exploring the three essential components of your station: a radio, a computer and a device that ties them together.

### PSK31, RTTY and JT65

Hands-on instructions to get started with the three most popular HF digital operating modes today.

### MFSK and Olivia

With these two modes you'll still be chatting long after the bands have supposedly gone "dead." **PACTOR** 

PACTOR is a great way to get your message through error free,

Plus articles from the pages of QST magazine! **HRO Price \$25.95** 

## **Farallon Cables / Accessories**

Model	Description			
	Miscellaneous			
9001	6' power cable	\$12.95		
8120	1200 baud packet cable	\$43.95		
8050	9600 baud packet cable	\$43.95		
	Control Cables			
8080	Modem to Kenwood or Yaesu radio, SCS 13pin DIN to DB9 female, 1.5m.	\$33.95		
8081	Modem to Icom radio, SCS 13pin DIN to 3.5mm Mini Phone Plug, 6`.	\$33.95		
8083	Modem to Icom or SGC radio, SCS 13pin DIN to male DB9, 5`.	\$33.95		
8085	Modem to Yaesu FT847 radio, SCS 13pin DIN to DB9 female, 1.5m	\$33.95		
8130	Modem to Yaesu radio, SCS 13pin DIN to 8pin Mini-DIN, 2m.	\$43.95		
	Audio Cables			
8050	Modem to Yaesu radio SCS 5 pin DIN to 6 pin mimi DIN 9600 baud	\$43.95		
8120	Modem to Yaesu radio, SCS 8pin DIN to Yaesu 6pin Mini-DIN, 2m 1200 baud.	\$43.95		
8123	Modem to Yaesu radio, SCS 8pin DIN to Yaesu 5pin DIN, 2m.	\$43.95		
8125	Modem to Yaesu radio, SCS 5pin DIN to 1/8" stereo phone plug.	\$43.95		
8127	Modem to Yaesu FT847 radio, SCS 5pin DIN to 1/8" stereo phone plug	\$43.95		
9090	Modem to Icom radio, SCS 8pin DIN to Icom 8pin DIN, 1.5m	\$43.95		
9095	Modem to Icom radio, SCS 8pin DIN to Icom 13pin DIN, 1.5m	\$43.95		
9096	Modem to Kenwood radio, SCS 8pin DIN to Kenwood 13pin DIN, 1.5m	\$43.95		
9097	Modem to Kenwood radio, SCS 8pin DIN to Kenwood 13pin DIN, 1.5m	\$43.95		

(see complete cable reference chart at www.farallon.us)



## **DATA / SOFTWARE**

## WiFi CONNECTION

# Kantronics



## KAM XL™ Multi-Mode DSP Controller

### HRO Price \$409.95

Kantronics' third generation multi-mode TNC is a state of the art design for operations on HF, VHF and UHF while supporting DSP modems and popular new modes of operation. The unit provides modes of Packet 300, 1200 or 9600 baud, G-TOR, Pactor 1, AMTOR ARQ, PSK31, RTTY, NAVTEX/AMTEX, ASCII, WEFAX and CW. It has a dual port mailbox and remote SYSOP access. It is GPS NMEA-0183 compatible and provides Kantronics Host Mode and KISS.



## KPC-3 Plus VHF / UHF TNC

HRO Price \$199.95

This compact, low current TNC has become the work horse of packet radio today. It features multiple packet connects, digipeating for APRS® operations, WEFAX reception, a GPS mode for tracking, personal packet mailbox and more.



## KPC-9612 Plus 128 Dual-Speed Dual-Port TNC

HRO Price \$399.95

This is the rapid delivery model, supporting 9600 baud. It features both 1200 and 9600 packet ports, advanced APRS® digipeating (APRS® is a trademark of Bob Bruninga), (K-Net) networking, amateur beeper (paging) and more.

## Keeping Up to Date . . .

The KAM '98 8.3 and KPC-3 Plus 9.1 will provide a second serial port for GPS and APRS® capabilities, plus additional GPS improvements.

The KPC-9612 Plus, now sold at version 9.1, has advanced digipeating for GPS, plus the ability to download EMWIN weather broadcasts.



Ham Radio Deluxe (HRD) is an integrated Amateur Radio Software Suite. The five modules in the suite provide rig control, logging, digital communications, satellite tracking, and rotator control. Latest version 6.2.8 now available. **HRO Price \$99.95** 

Ham Radio Deluxe Rig Control provides rig control through a richly featured full-screen interface and other products in the Ham Radio Deluxe Suite via a direct connection or TCP / IP remote access.

Ham Radio Deluxe Logbook provides QSO logging, DX cluster connectivity, callsign lookup, awards tracking (with integration to LOTW, eQSL, and Ham Radio Deluxelog. net), and contesting. Microsoft Access and MySQL are supported with strong features for backup and recovery.

**Digital Master (DM-780)** provides most popular sound card digital modes with direct integration to Ham Radio Deluxe Logbook.

Ham Radio Deluxe Satellite Tracking provides satellite operations with rig control and Google Earth integration.

**Ham Radio Deluxe Rotator** controls more than 25 popular models of antenna rotators.



## 24 Hour FAX Order Numbers

Anaheim 714-533-9485 Atlanta 770-263-9548 Burbank 818-842-5283 Denver 303-745-7394 New Castle 302-322-8808 **Oakland** 510-534-0729 Phoenix 602-395-1244 Plano 972-424-4969 **Portland** 503-684-0469 Salem 603-898-1041 San Diego 858-560-1705 Sunnyvale 408-736-9499 Woodbridge 703-494-3679

## RigExpert





WTI<sub>-</sub>1

## Wireless Transceiver Interface HRO Discount Price: \$409.95

This revolutionary new device wirelessly connects your transceiver to the Internet via a Wi-Fi network. Use your laptop to operate phone, CW, or digital modes from anywhere in the world! (Optional interface cable required.)

### Transceiver audio interface:

Analog audio interface is a connection to transceiver audio output (external speaker connector or line output) and transceiver audio input (microphone connector or line input). Audio interface enables operating digital modes, recording and playing voice, as well as other useful functions (such as measuring levels of a signal from the air) by using a computer. You may use a conventional headset on your computer to operate voice modes. A virtual sound card driver is provided to support operating digital modes.

### **CAT** interface:

CAT (computer aided transceiver) system provides control of transceiver frequency, operating mode, and other functions by computer software. Normally, modern transceivers have serial (with various signal levels) link providing CAT interface. In the WTI-1, CAT interface port is seen as a COM port by computer software.

### FSK output:

FSK (frequency shift keying) is a popular method of transmitting digital messages over radio primarily used in radioteletype (RTTY) mode. Most transceivers provide FSK modulator feature to make the RTTY signal stable and clear. A separate COM port is assigned for the FSK output when using RigExpert WTI-1.

### PTT and CW output functions:

Transceivers provide PTT (Push To Talk) and CW (continuous wave) keyer inputs to allow setting the transmitter on or off and operating CW using external device (PTT pedal, CW bug or paddle, terminal node controller, or personal computer). In RigExpert WTI-1, PTT and CW outputs are assigned to the RTS and DTR lines of a separate COM port. In addition, the user may press the PTT button on the screen to activate transmission.

### WinKey emulation:

To operate CW, you may use software which either directly manipulates the DTR line, or uses the WinKey protocol. A separate COM port is created in the system to support the WinKey data exchange.

31



## **RIG / PC CONNECTION**

A RIGblaster is the easiest way to connect your radio to your computer to operate PSK31, RTTY, WinMOR, Olivia, Packet and more! Chase DX easily using advanced JT65-A! Unrivaled simplicity, True FSK, True-keyed CW & CAT/CI-V Control – see why these are the World's Finest Digital Mode Interfaces! Includes DVD with more than 100 popular software programs. All RIGblasters are ground isolated and RF Filtered. Supplied with all the cables you need to get on the air. These models work with more than 2000 radio models. Kits are available for 4-pin round or RJ22 connectors.

## RIGblaster Blue



The West Mountain Radio RIGblaster Blue is a completely integrated Bluetooth wireless interface. Use a Bluetooth headset with your radio. Provides safe, secure hands-free operation. VOX PTT is available in the headset mode. Pair with any compatible laptop or tablet for mobile operation. Use with Yaesu, Kenwood, Icom, Ten-Tec and Elecraft radios. Pairing radio to any compatible smartphone or tablet provides for mobile rig control of digital modes. (Compatible software is required.) Perfect for mixed mode nets plus PSK31, RTTY, WinMOR and Packet. Operate using over 100 popular ham radio sound cards (optional). **HRO Price \$199.95** 



## RIGblaster Advantage

The only RIGblaster with a built-in soundcard. It works

with any radio using one USB cable to connect to PC. Built-in CAT or CI-V rig control interface. Mic input with PTT override and interrupt. Front panel transmit and receive audio and VOX delay controls. Fully isolated CW / FSK output for keyboard CW and RTTY. Includes (1) 3-ft 8-pin mic cable, (1) 6-ft 1/8" audio cable, USB cable, software programs DVD, and accessory kit. #58012-1288 **HRO Price \$189.95** 



## **RIGblaster Pro**

RIGblaster PRO does everything you can possibly do with a computer and a radio! Two mic inputs allow for auto-switching and dual PTT inputs for foot switch, amplifier, or sequencer. Run any digital mode, microphone equalization, record QSO's, rig control, true keyed CW and FSK. PTT override and interrupt enables mic to override the computer or stop the computer program! Perfect for contesting or SSTV operation. Includes: (1) 3' mic cable, (1) 6' DB9M to DB9F serial cable, (6) 6' 1/8" audio cables, USB to RS232 male adapter, software programs DVD, and accessory kit. #58002-953 **HRO Price \$269.95** 

## RIGblaster Plug & Play - Radio Versions

Model Number	Description	HRO Price
RB/PP/I8D	Icom 8 PIN DIN #58009-962	\$119.95
RB/PP/I13D	Icom 13 PIN DIN#58009-963	\$119.95
RB/PP/I/K/Y	6-pin mini din #58009-964	\$99.95
RB/PP/K13D	Kenwood 13 PIN DIN #58009-965	\$109.95

### **RIGblaster Accessory Cables**

Model Number	Description	HRO Price
#58108-972	Rig Control Cable for CAT (Yaesu 8-pin min DIN)	\$14.95
#58108-974	Rig Control Cable for CAT (Yaesu 6-pin)	\$13.95
#58107-971	Rig Control Cable for CI-V (Icom) Radios	\$9.95
#58120-984	CW Cable Kit for RIGblasters, 6 ft	\$9.95



Simple USB Plug and Play installation. One plug to the radio and one USB connection to the computer. Built in USB to serial converter for PTT, CW and CAT or CI-V rig control. USB powered, no additional power needed. Compact: great for mobile or QRP operation. Fully isolated CW keying output for direct keying of your rig's CW. Includes: radio specific 8-ft data jack adapter cable, 12" computer audio and USB cables and software programs DVD. #58009-960 HRO Price \$119.95

## RIGblaster Nomic

The RIGblaster Nomic is a small, simple, rugged and inexpensive sound card interface,



perfect for Echolink®, portable, or field setups. Supplied with both a standard DB9 RS232 serial cable and USB cable interface (supported for Mac (OS9,10), Linux, Windows (98SE – Vista 32 and 64 bit)! May be used with old or new computers with your choice of USB or RS232 DB9 serial. No external power supply necessary so it is great for portable or QRP operation. Simple and inexpensive choice for a dedicated Internet link with the Echo-Link® System. Includes: 3' 8-pin round circular mic cable, 3' RJ45 mic cable, USB to RS232 male adapter, 6' DB9M to DB9F serial cable, (2) 6' 1/8"

audio cables, owner's manual, software programs DVD, and accessory kit. #58008-959 **HRO Price \$59.95** 



## RIGtalk USB Rig Control Interface

Control your radio using your PC. USB to TTL level interface for CI-V control: Icom, Ten-Tec, or Elecraft. CAT Control for Yaesu and CI-V radios. Pocketsized USB dongle. Design tested with

most rig control and logging software. Compatible with USB 2.0 or lower. Includes software programs DVD. #58201-1004 **HRO Price \$54.95** 

Order pre-packaged with radio cable:

RIGtalk-CIV for Icom & Ten-Tec CI-V Radios \$56.95

**RIGtalk-CAT** for Yaesu FT100, 100D, 817, 857, 897 \$61.95

RIGtalk-CAT6D for Yaesu FT-736, 747, 767, 990, 1000 \$64.95

## DC POWER ACCESSORIES

## Super PWRgate PG40s

12 volt uninterruptable power switch that can supply up to



40 amperes continuously from either a power supply or a battery, and can also charge the battery with its high performance charger. Connected equipment will instantly switch to battery during a power blackout or power supply failure.#58403-1046 HRO Price \$139.95



## **ISOpwr**

ISOpwr is a solidstate switch using a high powered FET. The switch turns on

whenever the car's alternator is running and turns off when it is not running. The switching point is 13.5 volts. Safely handles 40 amperes and is protected with a 40 ampere ATC blade fuse. Includes three sets of Powerpole® connectors. #58401-1044 HRO Price \$89.95

### DC-to-GO



## with 4008 & Super PWRgate

Provides easy-to-use portable DC power. Takes group 24 size battery (sold separately).

Tough polypropylene battery box (inside dimensions: 11 1/8 x 7 3/8 x 10 1/8"). RIGrunner 4008 (conveniently mounted to battery box) and Super PWRgate PG40S (conveniently mounted to battery box). #58513-1381 HRO Price \$249.95

## DC-to-GO with RIGrunner 4008

#58513-1061 HRO Price \$134.95





#58425-1473 HRO Price \$234.95

TARGETuner Mobile Antenna Management System provides a controller with intelligent automatic controls for the tunable mobile screwdriver antenna, and a Remote RF Module.

- · Senses RF signal into the antenna.
- · No radio data link required for band selection.
- Direction switch and motor control of speed and direction
- · Programmable for stall current sensing.
- · Easy programming and memory capabilities.
- · Auto tuning.

## **PWRquard Plus**



Automatic safety switch turns off if voltage exceeds 15 volts or drops below 11.0 volts. Turns back on

when voltage is in safe operating range. Momentary voltage dips below 11.0 volts are ignored to prevent false tripping while transmitting. Rated for 40 A maximum while transmitting, 30 A continuous duty. Soft turnon / turn-off solid state switch protects radio and reduces inrush current – no relay contact bounce! Remote on / off capability. Indicator LEDs and audible alarm notify user when safety switch turns power off. User may disable buzzer. Uses Anderson Powerpole® connectors #58402-1045 HRO Price \$114.95

### **PWRcheck**

Provides display of voltage, current flow in either direction, wattage and



amp-hours. Measures 0 V to 60 V (less than 8 V requires USB power to PWRcheck), 40 A continuous load. Accurate to within +/- 10 mV, +/- 10 mA. Resolution: 10 mV, 10 mA. Backlit graphics LCD displays data in digital, analog and bar graph formats. USB computer interface for configuration and log data download. Programmable alarm conditions for over-current, over / under voltage, amp hours. Uses Powerpole® connectors. #58430-1286 HRO Price \$179.95

## **RIGrunner Power Distribution Panels**

RIGRunners are the most convenient and safest way to connect all your 12 volt equipment. Uses Anderson Powerpole® – ARES, RACES, RSGB standard. Polarized and color keyed. 40 Amps total (8012 is 80 Amps total). Outlets fused with assorted ATC / ATO automotive fuses. Blown fuse LED indicators. For home and mobile installations. 6-foot input cable, #10 AWG with 1/4-inch terminals. (#8 AWG for 8012). Includes Powerpole® packs. Alternate voltage versions of RIGrunners (24-48 VDC) are available! HRO Price \$CALL



### RIGrunner 4004U

40 amp, 4 outlets. 2 USB ports with 4 A charge. 6 pairs of 30 A Power-

pole® sets. #58315-1043 HRO Price \$79.95



### RIGrunner 4005

40 amp, 5 outlets. 6 pairs of 30 A Power-

pole® sets. #58312-1039 HRO Price \$64.95



### RIGrunner 4005H

40 amp, 5 outlets horizontal. 6 pairs of 30 A

Powerpole® sets. #58312-1041 **HRO Price** \$69.95



RIGrunner 4007U 40 amp continuous duty. 7 fused outlets. Automatic supply voltage and load current measurement shown on a 3 x 7 segment display. Automatic shut off on high (HVD) or low voltage condition (LVD). Intelligent USB port for charging iPhone, Android and other USB devices. #58313-1561 HRO Price \$169.95



RIGrunner 4008 40 amp, 8 outlets with LED and audible alarms. 6 pairs of 30 A Powerpole® sets. #58307-1035 HRO Price \$84.95



RIGrunner 4008H 40 amp, 8 outlets horizontal. 12 pairs of 30 A Powerpole® sets. #58307-1037 HRO Price \$89.95



RIGrunner 4010S 40 amp, 10 outlets. One master outlet and nine switched with LED and audible alarms. 12 pairs of 30 Am Powerpole® sets. #58303-1031 HRO Price \$129.95



RIGrunner 8012C 80 amp, 12 outlets with LED & audible alarms. 12 pairs of 30 A Powerpole® sets. #58301-1029 HRO Price \$159.95



**RIGrunner 4005i Remote Control** 

Remotely monitor and control your DC powered systems from any Internet-ready mobile device or PC. 12 VDC power distribution delivers up to 40 amps total through 5 outlets while transmitting. Each outlet features independent on / off control and user configured current trip point, 1 A to 40 A. RJ45 ethernet port standard. WiFi option available. #58312-1353 HRO Price \$259.95



## RADIO REMOTE CONTROL

## **REMOTERIG**



The Ultimate in Remote Control

Now with Dual (Stereo) Receiver and Includes 12 V **Power Supply** 

Remoterig RRC-1258-MKII-S-Set

\$489.95 - HRO Price for the Set

The Remoterig RRC-1258-MkII-S-Set was developed to control Amateur Radio stations remotely via the Internet in a user friendly and cost-effective manner.

Remoterig units are used in pairs; one unit is connected to the radio, and the other to the control equipment. The system is unique in that no PC is needed; both voice and data communications are handled by the two units.

The RRC-1258-MkII-S-Set can be configured to work with almost all ham equipment currently available from Icom. Kenwood, Yaesu, and Elecraft. Remoterigs are especially useful in situations where you are (1) not allowed to install antennas at your home location, (2) the noise level is so high that a normal signal exchange is not discernible, (3) you want to build an antenna system too large for your local urban area, or (4) you do not want to be dependent upon a PC for the remote control.

The ultimate functionality of the Remoterig RRC-1258-MkII-S-Set can be experienced when the system is used with radios having detachable front panels such as the Kenwood TS-480, TS-2000, or Icom IC-706 series. Simply replace the cable between the control panel and the radio with the Remoteria system. The Yaesu Twin version and Electric K3 Twin versions are available.

The system also works very well with more traditional remote control situations from PC-based control software, like Ham Radio Deluxe; the Remoterig boxes solve the voice and data problems, but you do need a PC for the control software itself in this particular setup.

The Remoterig system itself will not introduce any latencies, and those introduced by the Internet will rarely be a noticeable problem. The Remoterig system also includes a unique solution for operating CW over the Internet with, among other things, a built-in CW keyer that uses a standard 3.5 mm stereo plug.

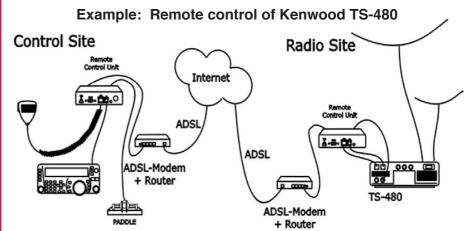
The Remoteria RRC-1258-MkII-S-Set is connected to the Internet primarily via 10 or 100 Mbit Ethernet cable, and fixed connections like DSL, cable, or WLAN. 3G based mobile solutions will also work, although occasionally with reduced performance. The system is portable and can be used from almost any network connection in the world. Session initiation, audio (VoIP), and data are transferred using standardized protocols like SIP, RTP, etc., where you can select different audio qualities depending on available bandwidth. The Remoteria system is easily configured via modern USB and WEB based user interfaces. Stereo (dual receiver) works only with radios with dual receivers.



## remote controlled Radio

A CW keyer has been implemented in the RRC-1285S-MkII-S-Set software to make CW operation possible, even with longer Internet latencies and jitter. During normal operation we depend on the radio's sidetone for CW, so the problem of Internet latency is solved by the sidetone being generated locally in the Remoteria box. Remoteria automatically mutes the sidetone generated by the radio for x number of ms after the dot or dash is sent; the delay can be adjusted depending on the latency.

The CW-handler is a kind of adjustable "jitterbuffer" for the CW keyer at the radio end. If the latency of your Internet connection is not constant, the delay (in ms) can be set before the radio is keyed. The CW keyer reconstructs the transmission on the fly before it is sent: a system that is much more tolerant of varying latencies (jitter). Lengthier delay settings may provide higher tolerance against jitter, but will also effectively delay the transmitted CW signal.



As an example, the diagram shows a TS-480 in use with the RRC-1258-MkII-S-Set Any of the available radios with detachable front panels, like the IC-706, and TS-2000, will be configured in the same manner. The cable between the front panel and the radio is replaced with two RRC-1258-MkII-S-Set; one connected to

the control panel, and one connected to the radio itself. No PC is necessary in this case.

When the power button is pressed, the radio on the remote side will start up, and all audio and information from the panel travels via the Internet between the pair of RRC-1258-MkII-S-Set units - a very

similar situation to SIP-based IP telephones. All appearances and functions will be as if the front panel and radio were directly connected. Presently, the TS-480 is the simplest to adapt using one additional cable (optional Kenwood E30-3500-05). Connection cables can also be made using the RJ-45 and RJ-11 connections.

## RADIO PROGRAMMING SOFTWARE

RPS-KGUVDIP



## **Radio Programming Made Really Easy With Software\*** and USB Cables that Work!

Spreadsheet design for memory channels. Many details completed automatically. Other details selected from lists. Less chance of errors. Fewer things to track down... no calculations!

- Copy and paste between files.
- No com port setup.
- Software designed specifically for your radio, including ALL menu item settings... NOT just memory channel programming.
- Interface to external data sources (TravelPlus™, Repeater Book, RFinder, Radio Reference).
- D-STAR info built in... set up D-STAR channels without typing a single key.
- Best tech support in the industry... by American Hams.
- Online videos to "See It Done" with details of how it works.
- Check for your radio at: www.rtsystemsinc.com.

## It's Sooooo Easy!

### RTS-03 USB to Serial Adaptor

This adaptor forms an RS-232 com port that can be used by many applications. This USB to serial adapter allows data to flow properly between devices without interference from its electronics. Use it when the cable from the radio manufacturer comes with a DB-9 connection: packet cables, firmware upgrade cables, CAT

This adapter WORKS... and you have RT Systems support should you need it.

System Requirements: Windows XP (SP3), Vista, Win7, Win8 or 8.1 (full version) 32 or 64 bit. Local or network CD drive for installation. USB port.

"I am not a computer savvy person; but using RT Systems software is totally intuitive and very, very easy. It offers more features than what free software does. Also, it was gratifying to speak with a knowledgeable tech support person that spoke English! I will be recommending this to all my Ham friends!"



## Call HRO for Pricing and Availability.



800-921-4834 | www.rtsystemsinc.com 510 Compton Street, Suite 105 I Broomfield, Colorado 80020



## Timewave Technology

## **RADIO CONTROL**

## **Radio Control**

## HamLinkUSB™

## USB Rig Controller Plus HRO Price \$59.95

Connect and control your transceiver via USB with Plus option for T-R switch, key, footswitch input, or user I/O.

The HamLinkUSB™ Rig Controller Plus is a USB to logic level conversion device for CAT / CI-V enabled transceivers that provides PTT output, keying output, or foot switch input options.

The CAT / CI-V feature provides a logic level serial interface which connects directly with non-RS-232 CAT / CI-V inputs on Kenwood, Icom, Yaesu, Ten-Tec, Elecraft and Alinco models. The controller is compatible with most soundcard and software control programs such as PK-Term 3.0.

## HamLinkUSB Optional Cable Assemblies

HLUSB-CIV CI-V - Icom, Ten-Tec, Elecraft. HRO Price \$8.95

HLUSB-CAT MiniDIN-8 cable assembly for Yaesu FT-857 / 817/ 100 / 100D HRO Price \$13.95

HLUSB-4CON 4 conductor with 3.5 mm plug to open end cable.
HRO Price \$13.95

## **Sound Card Modem**



## **Navigator**

The Navigator USB sound card modem has a proven USB audio sound chip, six FTDI USB serial COM ports, a K1EL WinKey keyer, true FSK and rig control connections for every radio. A built-in USB sound card with isolated audio I/O to your radio prevents ground loops. A second audio input lets you use both receivers in a dual receiver radio. The logic level and RS-232 rig control ports support your Icom CI-V, Yaesu CAT, Kenwood and other radios. Front panel controls set both RX audio levels, TX audio output level, audio monitor level, and the CW speed. HRO Price \$374.95

## **Multimode Data Controller**



## PK232SC Multimode Data Controller

**HRO Price 599.95** 

With the addition to the PX-232 of a built-in sound card, rig control, computer isolation, and total USB connectivity, the PK-232SC brings a new level of performance with sharp, accurate DSP filters for all its internal data modes and dual transformer isolation for sound card data modes. Weak signals magically appear from the noise and QRM bounces off the new DSP filters for cleaner copy with fewer errors than the old analog filters.

### More Filters, Better Filters, Automatic Selection

The PK-232SC brickwall filters have tighter bandwidth and steeper skirts for improved noise and QRM rejection. New firmware (version 7.2) allows a wider selection of filters than the original PK-232, so the filter can match the mode. The correct DSP filter is automatically selected when you choose an internal mode. In RTTY, Timewave's proven twin peak filters pluck the mark and space tones from the noise and QRM for great copy. In PACTOR, the filter bandwidth automatically changes when the baud rate shifts in response to the error rate of the link. In Morse (CW), the operator can preset either 100 Hz or 200 Hz bandwidth. The PK-232SC is compatible with all Windows XP, Vista, and Windows 7 software terminal programs for the PK-232.

## Sound Card Interface and Rig Control

For maximum flexibility, Sound Card / TNC switching is both software and panel switch controlled; sound card mode selection is software controlled. For example, when operating with Radio Operating Center software, changing to PSK31 from Pactor or MT63 is a simple menu click. The single USB cable from your PC also moves your logic level Kenwood RX / TX / RTS / CTS, Yaesu CAT, and Icom CIV and USB rig control interface to the back panel of your PK-232SC.

All the Proven Modes + All Sound Card Modes PK-232SC supports all new sound card modes in addition to all of the existing PK-232 modes: Pactor, VHF/HF packet, AMTOR/SITOR, Baudot, ASCII, Morse, HF Weather FAX, TDM, and NAVTEX.

The PK-232 / PSK comes with a complete cable and connector set in addition to Timewave's on-line and telephone support. As always, you can upgrade any PK-232 ever built to the latest PK-232SC!

- · Digital signal processor.
- · 18 DSP filters.
- · Twin peak RTTY filters; adaptive PACTOR filters.
- · Works with all sound card modes.
- · USB sound card audio.
- Rig control for Icom, Yaesu, and Kenwood transceivers.
- · Single USB computer connection.
- · Galvanic computer isolation.

## **Digital Processor**



### DSP-599zx

### All Mode Noise Filter / RTTY Modem

This powerful noise and QRM filter surpasses the newest "DSP" radios with its flexible features. Continuous filter tuning up to 5 kHz opens up wider bandwidth modes like shortwave, AM broadcast, and VHF / UHF FM. Heterodynes disappear, weak signals pop up from the noise, and the sharp filters slice away QRM.

The DSP RTTY modem (w/optional DSP-RTTY software) pulls out solid copy when you can barely hear a signal. Filter settings are easy-to-read on the backlit alphanumeric LCD display. Pushbuttons select noise reduction, memories, voice, CW, and data modes. Optical encoders tune the filters.

- · Hyperspeed DSP 27 ns, 36.8 MIPS.
- · 2 selectable channels with multiple memories.
- Front panel programmable input sensitivity and line output level.
- AC line noise AM filter.
- · Calibrated audio volt meter & generator.
- 13 preset data filters plus two user presets.

DSP-599zx HRO Price \$399.95; AC-8 P.S. \$24.95

## **Noise Canceler**

### ANC-4

The ANC-4 RF device eliminates or reduces power line noise, computer noise, TV generated interference, and other types of electrical noise. Attach the unit directly to the antenna connector of the receiver or transceiver to cancel locally generated noise before it affects the receiver AGC circuits. Reception of signals well below the noise level of the local interference is possible.

To cancel locally generated interference, the ANC-4 detects the interfering signal and adjusts its phase and magnitude so that it matches the offending interference at the receiver input, but is 180 degrees out of phase. Front panel controls allow adjustment of both phase and magnitude.

Connect the ANC-4 between the main station antenna and the receiver antenna connector. A second antenna connects to the ANC-4 to pick up noise. A short wire antenna or short collapsible whip is generally satisfactory for eliminating noises generated around the operating position or in the house, but an external antenna works better to eliminate noises generated outside the home. Any noise antenna that works, including combinations of horizontal and vertically polarized antennas, is satisfactory.

The ANC-4 operates as an active antenna by using the noise antenna and the NOISE GAIN control to amplify the antenna output. The unit can also be used as a diversity combiner to peak weak signals or null interfering signals. **HRO Price 189.95** 

# **DIGITAL SOUND**

# **AUDIO SOLUTIONS**

# Tigertronics



# SignaLink™ USB

# **Integrated USB Sound Card**

SignaLink<sup>TM</sup> USB combines the legendary performance of our SL-1+ with a state of the art "built-in" low-noise USB sound card. The unit delivers optimum performance while eliminating the need to attach to your computer's existing sound card. Convenient front panel controls and simplified installation make this one of the most user-friendly interfaces on the market.

ALL sound card digital and voice modes are supported by the SignaLink<sup>TM</sup> USB including traditional modes such as RTTY, SSTV, CW, PSK31, MT-63 and EchoLink®. Performance on all modes has been optimized by the use of special low-noise parts and careful design techniques. Front panel controls let you adjust your transmit audio, receive audio and transmit delay "on the fly."

The SignaLink™ USB works with ALL radios and can be attached to the mic jack, data port or accessory port (see table below.) A wide selection of fully assembled radio cables is available for common base and mobile radios. A special unterminated radio cable is available for handhelds and radios that use a non-standard connector.

The SignaLink™ USB comes fully assembled and tested. No external power required; power is from the USB port. The unit comes with a USB cable. Specify which cable is to be included by using the table below. Also included: mono cable, jumper wires, allen wrench, software CD, documentation. Supports Windows, Mac OS9.1 or later and Linux. FCC certified to comply as a Class B digital device. Unit prices including the radio cable are shown in the table below.

HRO Price \$99.99 each

#### **Microphone Connectors**

SLUSB4R For 4-pin round mic connector
SLUSB8R For 8-pin round mic connector
SLUSBRJ11 For RJ-11 mic connector
SLUSBRJ45 For RJ-45 mic connector
SLUSBKX3 For Elecraft KX3

#### **Accessory Port Connectors**

SLUSB5PD For 5-pin DIN data / accessory port
SLUSB8PD For 8-pin DIN data / accessory port
SLUSB6PM For 6-pin mini DIN data / acc.port
SLUSBK3 For Elecraft K3
SLUSB13I For Icom 13-pin DIN accessory port
SLUSB13K For Kenwood 13-pin DIN acc. port

RADIO A

West Mountain Radio audio products contain ClearSpeech® noise reduction/digital signal processing that provides extremely effective noise reduction for voice and CW. Reduces or eliminates atmospheric noise, hum, hiss, heterodynes & static. Greatly improves the signal-to-noise ratio and thus the readability of all QSOs.

# **Noise Reduction Speaker**



CLRspkr ClearSpeech® DSP

> Amplified loudspeaker with

Clear-Speech® adaptive DSP noise reduction for voice and CW. Recognizes intermittent nature of CW and allows it to pass noise free. Continuously variable adaptive filter noise reduction. Contains 4-in. loudspeaker with 7.5 Watts RMS maximum amplifier. Volume control knob for adjustment of internal speaker sound level. Front mounted 1/8 - inch stereo output jack for powered speakers or 16 ohm (or higher) headphones. #58407-948 HRO Price \$199.95

# RF Immune Computer Speakers

# **COMspkr**

Eliminate HAM radio station interference. Replaces RF interference prone computer speakers. Amplified speaker system



optimized for operation in close range of any radio transmitter. Exceptionally high rejection of radio frequency interference from 1 to 1000 MHz. Stereo high fidelity response for use with voice or music. High 3-Watts per channel acoustic power output can be heard clearly in noisy environments. Built-in amplifier assures compatibility with most computers and/or two way radios. #58409-950 HRO Price \$39.95 per pair

# High Power 15 Watt Speaker



## PWRspkr 15W

RMS linear power amplifier minimizes distortion at high sound levels. Sharp bandpass filter with 300 Hz

to 3.2 kHz pass band attenuates unneeded bass and treble sounds. Adjustable gain control. Plugs into radio's speaker or headphone jack. Ideal for use in truck or car for improved communication in noisy environment. Power cable fitted with Powerpole® connector. #58406-947 **HRO Price \$75.95** 

## **Noise Reduction Processor**



### CLRdsp ClearSpeech® DSP

Speaker and headphone amplifier with ClearSpeech® adaptive DSP noise reduction for voice and CW. Recognizes intermittent nature of CW and allows it to pass noise free. Continuously adjustable noise reduction. Contains 11 watt (into 4 ohms) power amplifier. Sturdy aluminum case - Ideal for mobile operation as well as home station Plugs into the speaker or headphone output on the radio. Powerpoles plug into any 12V supply. #58407-949 HRO Price \$199.95

# **Speakers**



# M = 1

# MFJ-281

MFJ ClearTone™ restores the broadcast quality sound

of shortwave listening. Makes copying easier, enhances speech, improves intelligibility, reduces noise, static, hum. 3-inch speaker handles 8 Watts. 8 ohm impedance. 6 foot cord.

# SCANNER MASTER



# Spectrum Force

Scanner Lapel Speaker **HRO Price \$19.95** 

# FILE

# HM-12 Designed for Hams

The high output full range "Genesis" dynamic element in the HM-12 is designed to work with just about every amateur radio low impedance transmitter. The element is mounted in a unique internal shock mount and exhibits nearly -35 dB of rear rejection, reducing background and ambient noise from the transmitted signal.

The "soft touch" PTT switch is wired to pins 3 and 4 for transmitter control with the microphone signal fed to pins 1 and 2 of the 4 pin XLR. The Heil HM-12 uses Heil CC-1 connecting cables.

This microphone has a unique internal windscreen plus an external foam windscreen. It has the 5/8" X 27 microphone clip designed for our booms and stands. Frequency response: 80 Hz-14 kHz @ -55 dB. Satin black finish. **HRO Price \$CALL** 



# PR-781 PR-781G

These professional quality dynamic cardioid microphones for amateur radio provide a wide frequency response, great articulation, and a -40 dB of rear rejection with ample output to drive most amateur radio microphone inputs. The PR-781G is specifically designed for use with most makes of Elite trans-

ceivers by Kenwood, Flex, Elecraft, Yaesu, Ten Tec and Icom. The PR-781G is the same great design and performance as the PR-781 but now with a beautiful gold screen. Both models come with the SM-3 mount.

PR-781 HRO Price \$CALL PR-781G HRO Price \$CALL

# iCM Salvation for Icom Users!

The iCM is a high-quality microphone for early Icom transceivers. It features a high-gain condenser element that provides full-bodied audio with plenty of drive to match up with the low-gain audio systems of the earlier Icom rigs. It also works great with the higher-gain "Pro" radios and IC-7800 from the current Icom line. Comes with a shielded 8' cable terminating in an 8-pin mic plug and a 1/4" pigtail. **HRO Price \$CALL** 



# **HMM** Handheld

The HMM brings new technology to the hand microphone. When you place a microphone element inside a clam

shell, the result is a hollow muffled sound. To solve this problem, we installed a grill on the top of the microphone that detunes the internal resonance of the housing. We came up with a very special, full-range microphone element with great speech articulation. A very flexible but sturdy coil cable terminates as all of our headsets with 1/8" male for the microphone and a ¼" male for the PTT control. Also offered with the iC electret element as HMM-iC. AD-1 cable required. HRO Price \$CALL

### MM-iC

## c Handi-Mics

The Handi Mic is an ultra-compact hand microphone utilizing a special internal shock mount, yielding superior audio compared to the standard microphones offered by the radio manufacturers. The Handi Mic is available with the "iC" element designed for Icom rigs. A special "Pro" version is also available, with a wide-

frequency "broadcast" element that sounds great on FM mobile rigs.  $\mbox{HRO Price CALL}$ 

Model	Element	PTT
HM-iC	Electret for most Icom	Yes
HM-PRO	Wide range broadcast	Yes

# The Fin™

The Fin™ utilizes the PR-20 element so popular in the professional audio realm. It is housed in a gor-

geous high-gloss chrome finish. If phantom power (not compatible with Icom transceivers) is provided to The Fin™, the blue wind screen (also available in red or white)

becomes illuminated by 4 embedded LEDs Now also available in satin black with red, white or blue LEDs/foam. CC-1 XLR required. HRO Price \$CALL

# **Pro Connector Cables**

This 8 ft long cable connects The Fin and PR Series microphones to your 8-pin Kenwood, Yaesu, or iCOM transceiver. Made with Heil-wire to help reduce RFI and noise. Pig tail easily connects to HS-2. FS-2 or FS-3.

CC-1 XLR Y	Yaesu cable	\$39
CC-1 XLR BAL	FT-950, FTdx9000	\$39
CC-1 XLR I	Icom cable	\$39
CC-1XLR K	Kenwood cable	\$39

# PR-10 Mic Package

**MICROPHONES** 





Small in stature, mighty in performance, the PR 10 combines a desk stand, boom and the latest microphone offering from Heil Sound. The integrated mic exhibits outstanding speech articulation with

perfect balance of highs and lows. Works well on most all transceivers. Requires a CC-1 XLR series cable to interface with your transceiver. **HRO Price \$CALL** 

# Heil PR40



The PR 40 was designed for commercial broadcast, live sound and recording. It features the Heil dynamic element with a perfectly flat response from 28 Hz all the way up to 18 kHz and has gorgeous articulation. The PR 40 is shipped with the SM-3 5/8" X27 mount and a padded leatherette carrying case and is available in chrome or gold

finish. All the PR series microphones require a CC-1 XLR cable to interface with your transceiver. **HRO Price \$CALL** 

#### Heil PR30

The PR 30 was designed for commercial broadcast, live sound and recording. It has comparable sound to the finest condenser microphones because of its wide frequency response, excellent transient response and low IMD. The PR 30 comes standard with the SM-3 5/8"X27 mount. All the PR series microphones require a CC-1 XLR

cable to interface with your transceiver. Available in black or champagne. HRO Price CALL

# **PR20 / PR20UT**



The PR 20 was designed for commercial broadcast, live sound and recording. With a smooth, flat response over a wide frequency range, it uses the Heil Pro Series microphone element for excellent transient response, low IMD and reduced proximity effect. The PR 20 comes standard with 3 mesh screens (black, gold and silver). All the PR series microphones require a CC-1 XLR cable to interface with your transceiver. Also available in gold color. HRO Price \$CALL

PRO20UT is the PR20 without packaged extras. Includes silver mesh grill, foam wind screen, and mic clip in padded vinyl zipper bag. HRO Price \$CALL

# **MICROPHONE ACCESSORIES**

# Mounts



SM-1 **Shock Mount** microphone not included

> The ultimate suspension mount for your Heil hand mi-

crophones. This shock

mount can be used on all Heil stands or booms with 5/8" x 27 standard threads." HRO Price \$80.00

# **PRSM Shock Mount**

This flexible support system helps suppress low-frequency rumble by dampening vibrations. The PRSM fits large-diameter microphones including the PR 30/40/781 and can



be used on all booms or stands with 5/8 threading. PRSM-B black finish. HRO Price \$CALL PRSM-C champaign finish. HRO Price \$CALL

# **Switches**

#### **HS-2 PTT Hand Switch**



Heil's high quality hand switch made for P.T.T. operation is shaped to fit your hand naturally and comfortably. Comes with a 6 foot cable that plugs into the AD-1 or CC-1 adapter. HRO Price \$32



Use the FS-3 to control the transmit function of your amateur radio. A 6-foot shielded cable is terminated with a commercial 1/4" plug that connects into the Heil CC-1 and AD-1 cable system. HRO Price \$26

#### FS-2 Dual Footswitch



This unique dualaction footswitch provides two sequenced microswitches, one each for connec-

tion to your transmitter and your linear amplifier; when you press down on the footswitch, the amplifier's switch is engaged first, followed immediately by the switch for the radio, and when you let up the reverse sequencing takes place. This provides safe T/R switching for both radio and amplifier without need for a control cable between the two units. HRO Price \$45.00



Heil's wild red base has a PTT with the Heil logo that is illuminated with LEDs. The LEDs can be lit in three different ways. Standard brass threading works with any Heil Sound microphone and accessories. This leadweighted base features high strength plastic covering for great looks. HRO Price \$CALL

# **CB-1 PTT Classic Base**

Abeautiful reproduction of a 1930 RCA microphone base. This heavy 3 lb. steel base with stainless trim features soft touch PTT with a 4" riser that accepts

5/8' x 27 hardware. HRO Price \$78.00

# FL-2 **Flange Mount**

With brass insert. Fits the PL-2T, SB-2, HB-1. **HRO Price \$28** 





# DT-1 **Desktop Flush Mount**

Allows PL-2T. SB-2 and HB-1 to slip into 1-1/2" hole drilled into desktop. HRO Price \$35.00

# WM-1 **Vertical Surface Mount**

The WM-1 is a unique mount for the Heil booms that allows them to be

mounted on a vertical surface. The brass insert of the WM-1 ensures smooth, perfect fit with PL-2T and HB-1. HRO Price \$22

# **Pre Amp**

# **USBQ** Microphone Pre Amp

The Heil USBQ is a professional quality, low noise microphone pre amplifier complete with two band shelving equalizers, on-board headphone amplifier, and D/A converter in a compact, portable package. Not just an adapter, but a true single channel mic pre amp complete with balanced XLR input mic level,

switchable phantom power, bass and treble controls, and adjustable headphone output level. The USBQ is for professional recording, commercial broadcasts and communicating over the internet. No batteries, just plug into USB and enjoy. HRO Price \$90.00

# **Booms**

# **Studio Boom**

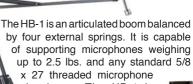
The PL-2T "Topless" boom is a unique articulated boom that lets you tuck your microphone cable away for a professional appearance. It accepts all Heil Sound 5/8" x 27 threading microphone mounting clips. It can support a total weight of 2.5 lbs. HRO Price \$120.00

SB-2

This com-**Small Boom** pact, adjustable boom accepts standard 5/8 x 27 threading and comes with a C-Clamp. It is compatible with all Heil Sound hardware. HRO Price \$63.00

# HB-1

**Economy Microphone Boom** 



hardware. The HB-1 is shipped with a C-Clamp mount that accepts up to a 1.5" thick cable and is compatible with all Heil Sound hardware HRO Price \$70.00

> RS-1 Riser

This 12" riser allows you to mount any Heil Sound boom behind your transceiver or console. HRO Price \$28

# **Wireless Adaptor**

### **HBA**

# Wireless Connector

We bring to you a pair of simple wireless devices one connecting into any of our 3 pin balanced XLR microphones (PR 20,



PR 22, PR 781, etc) and the receiver connected to the microphone input of any Heil AD-1 headphone adapter. It has a range of about 40'. The stations you work can not tell that you are using a wireless adapter instead of a wired mic cable. Shipped in a very nice padded carrying case. HRO Price \$CALL



# **HEADSETS**



sportscasters, podcasters, and amateur radio operators using the new HC-6 wide response microphone element. It features dual side, high efficiency speakers on acoustically tuned chambers for high rejection of outside noise. The unit folds up for easy transportation and storage.

#### There are two models:

Pro Set Elite 6 Uses HC 6 full range broadcast dynamic element for commercial broadcast applications. Requires AD-1 adapter. HRO Price \$CALL

Pro Set Elite IC Uses the specially designed high performance electret condenser which was designed for low mic inputs used on many Icom transceivers. Requires 5 volts DC phantom power as provided by all Icom rigs. Includes AD-1 iC adapter. HRO Price \$CALL



Stereo Headphones
HRO Price \$CALL

The Pro Set 3 headphones are designed for all types music recordings, internet, commercial radio, and ham radio. This professional, lightweight, and collapsable headset can be worn comfortably for hours on end while providing accurate sound reproduction

The Pro Set 3 ships with 3 detachable cables: a 1.8 M flexible straight cable, a 1.8 M straight cable with iPhone/iPod compatible 3.5mm plug, and a 3 M coiled cable. All cables feature a twist lock terminating in a 1/8" (3.5mm) professional gold plated screw-on 1/4" (6.3mm) adapter. The Pro Set 3 now features the Heil Sound phase reversal switch, which allows the user to "move" the incoming signal by engaging the phase reversal switch to significantly improve copy in a tough DX pile up.



#### Pro-7

The new PRO-7 is an aviation-style headset that's designed for comfort and performance. A true dual



channel, stereo headset, the PRO-7 features an audio balance control which allows the user to adjust levels between speakers. A unique phase reversal switch greatly helps the listener "dig out" weak frequencies.

The gooseneck mic boom on the PRO-7 can be rotated for use on either the right or left ear. The Pro 7 is available with the HC-7 dynamic element or the iC electret element. It is available in black, red, blue, and pink and will work with current AD1 series adapter cables. HRO Price \$CALL



designed for comfort, durability, and, above all, performance. All Heil Pro Sets now feature the Heil Sound phase reversal switch, which allows the user to "move" the incoming signal by engaging the phase reversal switch to significantly improve copy in a tough DX pile up.

The Pro Set is available in three versions. The Pro Set iC (PS-iC) utilizes the Heil Sound "iC" condenser element specially designed by Heil Sound for compatibility with the low gain found on many Icom transceivers' mic amp stages. The PS-iC is also shipped with the AD-1 iC adapter cable.

The **Pro Set 6** (PS-6)\* utilizes the new HC-6 element, designed for commercial broadcast applications. AD-1 cable is required.

Finally, the **Pro Set Media Pro** is supplied with a high-level condenser element and two 1/8" plugs, for applications requiring connection of a headset/boom mic to a computer's sound card.

\* Requires adapter

#### Pro SetAccessories:

**BAG -1** Leatherette travel bag for all Heil Sound headsets.**HRO Price \$28.95** 

# Lightweight



**BM-10** 

The BM-10 headset is a lightweight (only 3 oz), articulate sounding boomset that is ideal for DXpeditions, mobile, and general rag

chewing. The speakers are extremely sensitive and don't require much AF drive from the transceiver. The frequency response is 60 Hz - 12 kHz with very low distortion. The ear pads are replaceable acoustic foam. The BM-10 comes in two versions, a BM-10-Dynamic and a BM-10-iC (electret), to accommodate many radios on the market today. Ad-1 cable required **HRO Price \$Call** 

# **High Performance**



Pro Micro PMD-6 Dual-sided HRO Price \$CALL

The microphone audio for the Pro Micro series terminates into a 1/8" male plug while the head phone

terminates into a 1/8" stereo plug with adapter.

Both headsets are designed for commercial broadcast applications and are outfitted with the HC-6 element. The -3 dB points are fixed at 100 Hz and 12 kHz with sensitivity of - 57 dB at 600 ohms output impedance (centered at 1 kHz). The headphones adjust by bending the stainless steel piece that is inside the black padded headband.



Pro Micro PMS-6 Single-sided HRO Price \$CALL

# MICROPHONES / HEADSETS



LMC-1GH

**Boom Microphones** Pryme Radio Products has a product to meet any portable communication need. A leader in audio accessories for two-way radios, they offer small speaker microphones (the SPM-100 series) and full sized microphones (the SPM-2100). Users on the go will appreciate ultra comfortable lapel microphones (SPM-200) and the latest swivel earpiece

Earphones,

Lapel Microphones, and Over-the-Ear

LMC-1GH series.

# **Pryme Microphones**

Model	Description	HRO Price
SPM-100	Speaker / microphone for ADI, Icom, Standard, old Yaesu	\$29.95
SPM-101	Speaker / microphone for Kenwood, Wouxun	\$32.95
SPM-102	Speaker / microphone for FT-60R/FT-250/VX-3R/FT-1DR	\$28.95
SPM-142	Speaker / microphone for VX-6R/FT-270R	\$29.95
SPM-300EB	Lapel mic with ear hook for ADI, Icom, old Yaesu	\$40.95
SPM-301EB	Lapel microphone and ear hook for Kenwood, Wouxun	\$39.95
SPM-302EB	Lapel microphone for FT-60R/FT-250/VX-3R/FT-1DR	\$29.95
SPM-342EB	Lapel microphone with ear hook for VX-6R/FT-270R	\$41.95
LMC-1GH00iL	Lapel Mic w/swivel earpiece for AD1.lcom, Standard, old Yaesu	\$29.95
LMC-1GH01	Lapel Mic w/swivel earpiece for Kenwood. Wouxun	\$29.95
SPM-800B	In-helmet speaker mini boom for ADI, Icom, Standard, old Yaesu	\$64.95
SPM-801B	In-helmet speaker mini boom for Kenwood, Wouxun	\$70.95
SPM-802B	In-helmet speaker mini boom for FT-60R/FT-250/VX-3R/ FT-1DR	\$69.95
SPM-800F	In-helmet speaker / microphone for ADI, Icom, Standard, old Yaesu	\$59.95
SPM-801F	In-helmet speaker / microphone for Kenwood, Wouxun	\$68.95
SPM-802F	In-helmet speaker / microphone for FT-60R/FT-250R/VX-3R/FT-1DR	\$69.95
SPM-2101	Heavy duty speaker/microphone for Kenwood. Wouxun	\$39.95
SPM-2102	Heavy duty speaker/microphone for FT-60R/FT-250R/ VX-3R/FT-1DR	\$49.95
SPM-2142	Heavy duty speaker/microphone for VX-6R/FT-270R	\$39.95
EH-1389SC	Earphone earhook style for listening only.	\$33.95

# Extended Warranty Program

HRO's Optional Extended Warranty Program extends the original manufacturer's limited warranty on most Amateur Radios, but not for attendant accessories (like batteries, microphones, speakers, etc.) A period of one (1) or two (2) additional years can be selected, and all limitations, exceptions, and exclusions of the original manufacturer's warranty apply during this extended period.

The HRO Extended Warranty Program must be purchased within 30 days of the date the original product(s) was purchased, and is only available to the original purchaser of the relevant product(s). Neither the benefits nor coverage of this program are assignable or transferable, and verification that the Extended Warranty Program was purchased, product purchase date and serial numbers may be required of the buyer.

The HRO Extended Warranty Program starts at the conclusion of the new product original warranty period, and all Extended Warranty claims must be processed by HRO directly via any one of our thirteen store locations.

Further details are available online at www.hamradio.com.

# BROPLEX KEYERS Quality and Pride Throughout

# **KEYERS & KEYS**



paddle imitates the automatic dots and dashes of the electronic keyer with the same motion used to operate the "Bug."

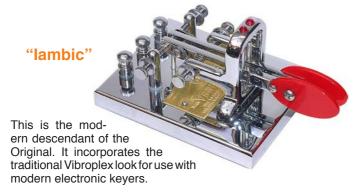
Vibrokeyer Deluxe: Highly polished decorative chrome base with bright chrome top parts. Silky smooth movements are jeweled as in fine Swiss watches. HRO Price \$189.95

Vibrokeyer Standard: A neat, crisp black textured finish base with bright decorative chrome parts. Non-jeweled movement. **HRO Price \$149.95** 



patented in 1894, the Original is still manufactured today using tools and dies very similar to those used by its inventor, Horace G. Martin. Modern-day operators can put their fist to the same equipment as the Western Union and railroad operators of old.

Original Deluxe pictured: HRO Price \$249.95



lambic Deluxe: Same as Presentation but without the 24K gold plated brass plate. HRO Price \$189.95

lambic Standard: A neat, crisp black textured finish base with bright decorative chrome top parts. HRO Price \$149.95

### "Vibrocube"

The Vibrocube registers just under 6 pounds on the scale. It is a large paddle that stays in place on the desk and



accomodates a large hand comfortably. The base is USA-forged cold-rolled steel, upper components are zinc, steel and brass. The finger pieces are hard red acrylic. Instead of magnetic tensioning, we use a spring loaded method which provides a greater range of possible tension settings than magnets allow.

Vibrocube Standard: HRO Price \$219.95

Vibrocube Deluxe: Like the Standard version with jeweled upper and lower trunion screws, an all-chrome base and all-chrome top components HRO Price \$289.95

# "Brass Racer"

The Brass Racer keys are unique in that there are NO springs in the design. They are crafted from solid brass and mounted on a base of polished hardwood. Tension on the paddle is infinitely adjustable by the use of magnets.

Brass Racer lambic: This iambic paddle is designed for use with an external keyer or the keyer in your radio. The Triangle Brass base is mounted on polished hardwood. HRO Price \$149.95



Vibroplex® offers a STRAIGHT key with a unique mechanical action, unlike any other straight key that has ever been manufactured.

Straight Key Deluxe: Highly polished chrome base with decorative chrome top parts. HRO Price \$189.95

Straight Key Standard: A neat, crisp black textured finish base with bright chrome top parts. HRO Price \$149.95

# **KEYERS & KEYS**

# KENT

Kent paddles offer a smooth feel with sealed ball bearings. Precise gap adjustments with knurled heads on fine pitched screws and locking nuts. Made from solid brass within a permanent brass housing.

Twin Paddle (TP-1) \$164.95 Single Paddle (SP-1) \$159.95 Straight Key (SK-1) \$154.95

# Straight Key







# MFJ-461

Morse Reader, 3-60 WPM. Use 9V, not included.

#### MFJ-418 Morse Tutor 3-60 WPM. Use 9V, not included.







## MFJ-464

Keyer / Reader. They won't know you never passed the code test! Sends / reads 5-99 WPM. Auto speed tracking. 2-line LCD. Use paddle or keyboard. Easy menu operation. Front panel speed, volume controls.



that won the west, yet with modern features like Oilite bearings, a solid navy knob, gold-plated solid silver contacts, full locking adjustments of all tension and spacing parameters, and Bencher quality materials throughout. These keys are ideal for the new amateur just mastering code as well as the old time brass pounder anxious to "clear the hook." This key offers the Morse code operator an investment that will bring years of pride and satisfaction. Try the Bencher "RJ" hand key at your nearby HRO. You will be convinced there is no better key available. HRO Prices: RJ-1 Black \$139.95 RJ-2 Chrome \$159.95

# ST Series Single Lever Paddles

Superb Bencher features and construction for the ham who prefers single lever operation.

**HRO Prices:** 

ST-1 Black \$129.95 ST-2 Chrome \$154.95





# **TOUCHKeyer**

A touch-operated twin paddle key with a built-in advanced memory keyer. Just touch the paddles to send perfect CW. The TOUCHkeyer has no moving parts, no mechanical adjustments, no clicking sounds. **HRO Price \$119.95** 

Questions? Call a Helpful Ham at HRO Toll Free



Hex Key

Gold plated silver contacts. Molded acrylic finger paddles. Polished chromium parts. Magnetic tension adjustment and adjustable contact spacing. Black powder coated steel base. **HRO Price \$269.95** 



# BY Series lambic Paddles

You will enjoy the smooth, precise action of a Bencher paddle with any iambic keyer. These paddles feature a heavy steel base, gold plated silver contact points, non-skid feet, stainless steel adjustable spring, self-adjusting needle bearings, and large acrylic finger paddles.

HRO Prices:

BY-1 Black \$124.95 BY-2 Chrome \$154.95

# **EQUIPMENT MOUNTS**

# **DESK MOUNTS**

**SCANNER MASTER** 

# **GPS, Radio & Phone Mounts**

# Portagrip

Portagrip's collection of mounts for cellular phones, GPS units and radios will make your mobile operations easier and safer.



716

#### Mini Mount:

Perfect for tight installations, height only 4". Includes models 77-04 set screw adjustment at head and 727-04 knob adjustment at head.



Stay-put Flex Mount: Includes model 782.



Standard Mounts:

Split ball base with 90 degree tilt movement. Includes models 320 std mount w/6" rise. 322 deluxe mount w/6" rise, 328 mount base only accommodates 5/8" diameter post and

tilts 0 to 90 degrees, 329 base only accommodates 5/8" diameter post and tilts to 45 degrees over center.

(Radios not included)

#### **DESK-MT-BASE-4**

Desk mount for 4 base scanners. HRO Price \$79.95



# **DESK-MT-BASE-3**

Desk mount for three base scanners. HRO Price \$69.95





#### **DESK-MT-BASE-2**

Desk mount for two base scanners.

**HRO Price \$59.95** 



Desk mount for three portable scanners. **HRO Price** \$59.95





#### **DESK-MT-PORT-2**

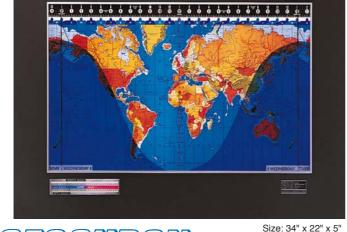
Desk mount for two portable scanners.

HRO Price \$49.95



# **DESK-MT-PORT-1**

Desk mount for one portable scanner. **HRO Price \$39.95** 



**Wall Clock** 

**FEOCHS** Global Time Indicator

A "must item" for a First Class Ham Shack

Geochron is a true global time indicator. At any moment, Geochron displays the correct time everywhere in the world - the week, date, the sun's declination and distribution of daylight and darkness on the earth's surface. Geochron is available in four (4) models and a multitude of housing finishes and trim colors. Packaged for "drop shipment" anywhere in the world via UPS. Geochron can be surface mounted on the wall like a picture or recessed using optional mounting brackets. Call HRO for special pricing opportunities.

# **EQUIPMENT MOUNTS**

# **ENCODERS**



Radios are NOT included. They are shown for illustration purposes only.



# UltiMount LM-700

The UltiMount installs in seconds and can

be swiveled, rotated and adjusted to virtually any position. Secured with a flexible pad that has 3M automotive adhesive on the back, the UltiMount can be removed without leaving any residue. **HRO Price \$24.95** 



# LoBoy Mount LM-600

A universal, low profile mount for securing hands free cradles, XM and Sirius satellite radios, TFT displays and more. The LoBoy features an integrated swivel which allows easy adjustment in any direction, holding securely without

locking or tightening levers. The flexible mounting pad with its 3M adhesive back makes installations fast, simple and strong. **HRO Price \$14.95** 



This mount has a 15" Gooseneck Swivel Mounting Pedestal, allowing you to place your device in the perfect position for optimal viewing. Just loosen the passenger seat bolt, slide the mount bracket under the bolt, tighten the bolt. The mount comes with a 4 hole AMPS plate to mount remote heads. **HRO Price \$24.95** 



The Cup Holder mount works for either an HT or a remote radio head. A flywheel control on the top of the base allows the user to adjust the mount to just about any size cup holder. The mount stands 5 1/2 inches tall can be installed or removed in seconds. **HRO Price \$24.95** 

# Vent Mount LM-100 The vent mount has a 4 hole

AMPS pattern that can be attached to Alinco, Icom, Kenwood and Yaesu remote head brackets. Swivel 360 degrees for optimal viewing. The vent mount can be installed or removed in seconds. Fits most horizontal vent louvres. It does not work on the large circular vents like those found in Mustangs and PT Cruisers. HRO Price \$14.95



LM-2500H

The bean bag mount weighs 2 pounds and has a non-skid surface on one side. On the other side is a plate designed for the LM-500 mount suction cup to attach to. The Gripomatic side grip holder has padded arms that hold your transceiver. **HRO Price \$39.95** 



# Bean Bag Dash Mount LM-25

The bean bag includes a safety loop and a plastic hook to ensure the stability of

the weighted friction dash mount. The open design in the front of the mount allows for viewing your entire GPS. **HRO Price \$19.95** 



LM-100H

The vent mount includes a side grip holder for some Kenwood and Icom remote heads. The grip has padded arms and can handle devices from 1 7/8 inches to 4 1/4 inches in height. Easily remove your device to store out of sight when you reach your destination. For use with horizontal air vent louvres. **HRO Price \$24.95** 





The BUG is a mount for securing small, narrow profile radio control heads for Satellite radios, (both XM and Sirius); VHF radios, HAM radios and more. **HRO Price \$19.95** 



# Adapter for Yaesu FTM-350 LM-AD1

Adapterkitforthe FTM-350 remote display head and similar (including Icom) remote display heads that use the camera style threaded socket to hold

the display head to the mount. The kit is sold separately and attaches to all the Lido Mounts. **HRO Price \$8.95** 

# **Encoders / Decoders**



# **Tone Signaling**

Tone encoders and decoders are just what you need to control your repeater or listen only to signals that are meant just for you.

	Encode	Decode	Comments	HRO Price
TS- 64WDS	٠	٠	Universal design, CTCSS encoder / decoder capability for all FM transceivers	\$54.95
SS-64	٠		DIP switch programmable CTCSS encoder for all FM transceivers	\$28.95
DCS-23	•	٠	Motorola® type encoder/decoder. Compatible with all DCS systems	\$59.95
ID-8			Morse Code Identifier. 8 programmable, selectable messages for repeater ID	\$69.95

# **STUDY AIDS**

# **Radio Manuals**



# **Nifty Mini-Manuals**

Mini-Manuals are fully laminated, spiral bound booklets,  $4.25 \times 8$  inches, providing simplified step-by-step instructions for all your radio's features. These short-form manuals are smaller, more durable, and easier to use than manuals normally supplied with a radio.

#### Kenwood

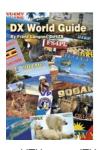
Model	Mini-Manual Description	HRO Price
NIFTY-TH-F6A	Mini Manual TH-6A	\$21.95
NIFTY-TH-D72A	Mini Man + Ref Card	\$24.95
NIFTY-TH-K20/K40	Ref Card TH-K20/40	\$5.95
NIFTY-TM-271/281	Ref Card TM-281	\$5.95
NIFTY-TM-D700A	Mini Manual TM-D700A	\$16.95
NIFTY-TM-D710A	Mini Manual TM-D710A	\$19.95
NIFTY-TM-G707A	Ref Card for TM-G707A	\$5.95
NIFTY-TM-V71A	Mini Manual TM-V71A	\$18.95
NIFTY-TS-2000	Mini Manual TS-2000	\$18.95
NIFTY-TS-480S/HX	Mini Manual TS-480	\$18.95
NIFTY-TS-570D/S	Mini Manual TS-570	\$16.95
NIFTY-TS-590	Mini Manual TS-590	\$19.95

#### **MFJ**

Model	Mini-Manual Description	HRO Price
NIFTY-MFJ259B	Mini Manual MFJ-259B	\$12.95
NIFTY-MFJ269	Mini Manual MFJ-269	\$12.95

#### Miscellaneous

Model	Mini-Manual Description	HRO Price
NIFTY-MM-BandPlan	Amateur Radio Band Plan	\$10.95
NIFTY-D-STAR-BOOK	E-Z Guide to D-Star Operations Book	\$13.95
NIFTY-DXGUIDE	DX Field Guide Book	\$15.95
NIFTY-HT-STAND	HT Stand	\$34.95
NIFTY-PSK31-BOOK	E-Z Guide to PSK31 Operations	\$12.95
NIFTY-RADIOMG	Radio Montoring Guide	\$15.95
NIFTY-ECHO-LINK-BOOK	Guide to Echolink	\$13.95
NIFTY-K3	Mini Manual Elecraft K3	\$22.95
NIFTY-KX1	Ref Card Elecraft KX1	\$5.95
NIFTY-KX3	Mini Manual Elecraft KX3	\$20.95
NIFTY-P3	Mini Manual Elecraft P3	\$10.95
NIFTY-P3	Mini Manual Elecraft P3	\$10.95



# CQ DX NEW! World Guide

by Franz Lagner, DJ9ZB

The third edition is the first using color throughout and the first to be entirely in English. It has entries for more than 300 DX "entities." Information includes geographical location, WAZ

and ITU zones, ITU callsign allocations, and amateur prefixes. Each listing also has a map and flag, plus information on the country's licensing agency and national amateur radio society. Listings also include call areas, IOTA information and representative QSL cards. The Guide will be available in both print and digital (CD) formats. HRO Price \$42.95 in print and \$22.95 on CD.

### Yaesu / Wouxun

Model	Mini-Manual Description	HRO Price
NIFTY-FT1900	Mini Manual FT-1900	\$16.95
NIFTY-FT2000/D	Mini Manual FT-2000	\$20.95
NIFTY-FT250R	Ref Card FT-250R	\$5.95
NIFTY-FT270R	Ref Card FT-270R	\$5.95
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NIFTY-FT857/D	Mini Manual FT-857	\$16.95
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NIFTY-VX6R	Mini Manual + Ref Card VX6R	\$20.95
NIFTY-VX7R	Mini Manual + Ref VX7R series	\$20.95
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NIFTY-VX8DR	Mini Manual + Ref Card	\$22.95
NIFTY-VX8GR	Mini Manual + Ref Card	\$22.95
NIFTY-KGUV3	Ref Card KGUV 1/2/3	\$5.95
NIFTY-KGUV6 Amateur	Ref Card KGUV6 series	\$5.95

#### Alinco

Model	Mini-Manual Description	HRO Price
NIFTY-DJ-G29	Mini Manual DJ-G29	\$22.95
NIFTY-DJ-G7T	Mini Manual DJ-G7T	\$22.95
NIFTY-DX-SR8	Mini Manual DX-SR8T	\$16.95
NIFTY-DJ-V57	Mini Manual DJ-V57	\$19.95
NIFTY-DR-135/235/435	Ref Card DR-135/235/435	\$5.95

#### **Icom**

Model	Mini-Manual Description	HRO Price
NIFTY-IC-80AD	Mini Manual + Card IC-80AD	\$24.95
NIFTY-IC-92AD	Operating Manual IC-92AD	\$24.95
NIFTY-IC-91A/AD	Mini Manual + Card IC-91	\$22.95
NIFTY-IC-R20	Mini Manual + Card IC-R20	\$19.95
NIFTY-IC-2820H	Mini Manua IC-2820H	\$20.95
NIFTY-IC-718	Mini Manual IC-718	\$16.95
NIFTY-IC-7410	Mini Manua IC-7410	\$20.95
NIFTY-IC-7000	Mini Manual IC-7000	\$20.95
NIFTY-IC-7200	Mini Manual IC-7200	\$16.95
NIFTY-IC-756PROIII	Mini Manual IC-756PROIII	\$20.95
NIFTY-IC-7600	Mini Manual IC-7600	\$24.95
NIFTY-IC-7700	Mini Manual IC-7700	\$24.95
NIFTY-IC-7800	Mini Manual IC-7800	\$24.95
NIFTY-IC-9100	Mini Manual IC-9100	\$22.95
NIFTY-IC-910H	Mini Manual IC-910H	\$20.95
NIFTY-ID-31A	Mini Manual + Card ID-31A	\$24.95
NIFTY-ID-51A	Mini Manual + Card ID-51A	\$25.95
NIFTY-ID-880H	Mini Manual ID-880H	\$22.95



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Part	HRO
Number Description	Price

# **Study Manuals**

<b>GWTM</b>	Technician Class Book	21.95
<b>GWTW</b>	Technician Audio Theory	29.95
	Course on 4 CDs	
NCS	Tech Book plus	29.95
	Software Package	
GWGM	General Class Book	24.95
GWGW	General Audio Theory	29.95
	Course on 4 CDs	
GWEM	Extra Class Book	19.95
GWEW	Extra Audio Theory	35.95
	Course on 6 CDs	
ECS	Extra Book plus	35.95
	Software Package	
HOS	W5YI Ham Operator	27.95
	Software – no books	
HOSB	W5YI Ham Operator	85.95
	Software plus 3 books	
GUS	General Book + software	34.95

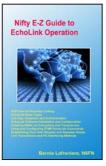
# **Morse Code Study Materials**

GW05	Morse Code 0-5 wpm	39.95
GW13	8 CDs Morse Code 6-16 wpm	39.95
GWIS	8 CDs	39.93
GW20	Morse Code 10-28 wpm	39.95
	8 CDs	
<b>GWCT</b>	CW Refresher Course	14.95
	0-5 wpm. 2 audio CDs	

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GSE	Getting Started	19.95
MINI-1	in Electronics Mini Notebook, Vol. 1:	12.95
	timer, op amps, optolectr circuits and projects	onic
MINI-2	Mini Notebook, Vol. 2:	12.95
	science and communicat	tion
	circuits and projects	
MINI-3	Mini Notebook, Vol. 3:	12.95
	electronic sensor	
	circuits and projects	
MINI-4	Mini Notebook, Vol. 4:	12.95
	electronic formulas,	
	symbols and circuits	
BELC	Basic Electronics	19.95
BDIG	Basic Digital Electronics	17.95
BCE	Basic Communications	17.95
	(analog) Electronics	
GROL	Get Your Commercial	49.95
+RADAF	R Radio License – Book	
GRSP	Get Your Commercial	79.95
+RADAF	R Radio License – Book pl	us
	W5YI Study Software Pa	ckage

# **AMATEUR BOOKS**



# Nifty E-Z Guide to EchoLink<sup>™</sup> Operation

This ideal reference for those getting into EchoLink shows how to make contacts using your

computer or DTMF equipped transceivers.

- Straight forward, simple explanations for both beginning & experienced users.
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- EchoLink computer users, simplex links, and repeaters.
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- · Call sign validation and authentication.
- · RF Link transceiver requirements.
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- Configure EchoLink's sysop setup menus.
- Add EchoLink capability to a repeater.
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U.S. Repeater
Map Book
16th edition
USRG

The PERFECT traveling companion. Road maps show



major highways and cities in every state. Amateur radio repeater frequencies are included. This is a must for truckers and travelers. Enhanced maps provide great highway detail. **HRO Price \$17.95** 

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# The Road Home

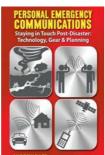
by Andrew Baze

Do you love an adventure? Especially when it includes ham radio in emergency communications, disasters and peril? Do you know any young adults who might be interested in radio? Would



you like to learn more about disaster preparedness? Entertaining and informative for young and old alike, this well-reviewed book will hook you from the beginning and take you on a boy and father's trek back from the wilderness to the broken city where the rest of the family waits, unaware of the other danger lurking on their doorstep. **HRO Price \$12.99** 

# Personal Emergency Communications



#### by Andrew Baze

Do you want to be prepared for the next power outage or a natural disaster? This book is written for everyone – no radio expertise required! It will tell you how to make your own realistic, simple emergency communication plan. When the chips are down, what will you do if your cell

phone, land-line, and the Internet don't work? This book has the answer! **HRO Price:** \$14.99

# Reference Book



# Pocket Reference

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This concise all-purpose reference has hundreds of tables, maps, formulas, constants & conversions. More than 200 new pages and thousands of updates! HRO Price \$12.95

# **Ham Radio For Dummies**

Hams do cool things like talking to folks around the world and helping with communications during emergencies. If hamming it up sounds like fun, here's the scoop, including licensing requirements and how to set up a station. And if you're already licensed, this book will help you start sounding (and feeling) like a pro!

#### The Dummies Way

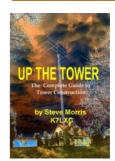
- "Get in, get out" information.
- · Explanations in plain English.
- · A dash of humor and fun.
- Tear-out cheat sheet.Icons and other
- Icons and other navigational aids.
- Top ten lists.

#### Discover how to:

- · Set up a radio shack.
- Learn ham jargon.
- · Be a ham on the go.
- · Communicate on air.
- · Prepare for license exam.
- · Help in an emergency or natural disaster.

HRO Price \$21.99

# **Tower Guide**



# Up the Tower

**Ham Radio** 

DUMMIES

The Complete
Guide to Tower
Construction
by Steve Morris,
K7LXC

This is the first tower book of its type ever

published. It includes abundant information on all aspects of tower construction, use, and care from the foundation to the antenna installation. Steve Morris gathered this collection of invaluable information during his years as a professional installer of amateur and commercial towers. Read about regulatory concerns, guy wires, safety equipment, and more. HRO Price: \$32.00

# **Ham Magazines**

CQ CQ Bimonthly QST QST Monthly

# **CQ** Publications

ARC2015 Amateur Radio Calendar 2015 UBAUBAU Understanding Building &

Using Baluns & Ununs

LMOA Lew McCoy on Antennas
DXWG DX World Guide

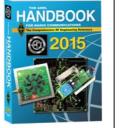
VHF PROP VHF Propagation
HFANTHB HF Antenna Handbook
MILSPEC Military Spec Radio Gear



# **ARRL BOOKS**

# The ARRL Handbook for Radio Amateurs

This 92nd edition of The ARRL Handbook is at the forefront of the arowina field of wireless communications. The book covers not only the fundamentals of radio electronics-



analog and digital-but also practical circuit and antenna design, computer-aided design, digital operating modes, equipment trouble shooting, and reducing RF interference. Many projects and construction articles are included to help enhance your station and expand your participation as an active radio experimenter. Pracitcal applications and solutions make The Handbook a must-have for hobbyists and technical professionals, finding its way onto workbenches, operating desks and into university libraries and classrooms.

Included is a fully searchable text and illustrations in the printed book, as well as expanded supplemental content, software, PC board templates and other support files.

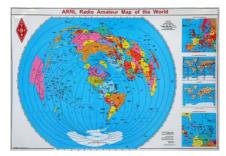
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# **Operating Manual** 10th Edition

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DXCC LIST Official ARRL DXCC List Log Book RD Repeater Directory

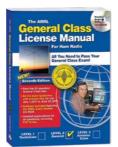
# **Study With ARRL**



# **Ham Radio** License Manual

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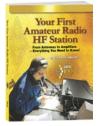
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Get on the air now! A guide to your first Amateur Radio station. Select radios and antennas, explore operating modes, and assemble your station. HRO Price: \$19.95



Here is practical advice on choosing your first radio, antenna, computer, software, and accessories. Explains the



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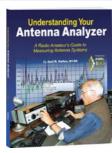
# **ARRL BOOKS FOR AMATEURS**

ANTENNA BOOK

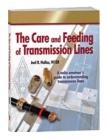
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A radio amateur's quide to understandiing antenna analyzers.



# Care and Feeding of **Transmission Lines**



Transmission lines are an integral part of the art of radio. Properly selected and installed transmission lines lead to the success of a radio station transmitting the signal over short distances to your antenna with minimum signal loss This book provides a guide

to understanding transmission lines by introducing the various types of lines available and identifying the key parameters of coaxial as well as balanced lines. You will learn how to select the transmission line, install it and maintain it. The different types of connectors is also discussed. HRO Price \$24.95

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**RFE** RF Exposure and You RFI Radio Frequency Interference



# **Arduino** for Ham Radio

The Arduino has become widely popular among hobbyists and ham radio operators. Hams are exploring these powerful, inexpensive microcontrollers, creating new

projects and amateur station gear. With its open source model, the Arduino community freely shares software and hardware designs, making projects easier to build and modify.

Arduino for Ham Radio introduces you to the exciting world of microcontrollers and opensource hardware and software. It starts by building a solid foundation through descriptions of various Arduino boards and add-on components, followed by a collection of ham radio-related practical projects. Beginning with simple designs and concepts and gradually increasing in complexity and functionality, there is something here for everyone. Projects can be built quickly and used as-is, or they can be expanded and enhanced with your own personal touches.

Projects include: Random Code Practice Generator, CW beacon, Foxhunt Keyer, and talking SWR meter.HRO Price \$29.95

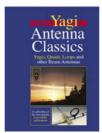
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# Antenna **Book**

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Hams and professionals will find projects and practical information on designing, building, and installing almost any imaginable type of

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# Yagi Antenna Classics

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# Antenna Compendium



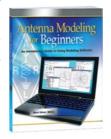
# Volume 8

Inside are 60 articles from QST magazine featuring practical ideas, tips, and some of the best antenna projects. You'll find designs such as the Handy Yagi Antenna, Compact 40 Meter HF

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# World's Best Hobby

by Dave Bell, W6AQ



Ham Radio has more facets than a

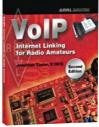
cheap diamond, as you'll discover as you dig into World's Best Hobby. Dave Bell, producer of documentary and reality TV programs, has written

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# **VoIP: Internet Linking**

# for Radio **Amateurs**

Your complete guide to the most widelyused VoIP systems used by hams; with particular attention to EchoLink and the Internet Radio, HRO Price: \$21.95



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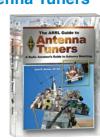
# **Radios** to Go!

There is a wealth of features in the latest handhelds. Many of the features are hidden and it is not easy to get full benefit from your investment. This publication is

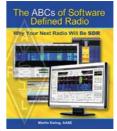
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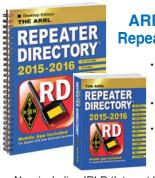
An introductory guide to SDR and Digital Signal Processing (DSP) technologies. It offers a straight-forward look inside SDR and provides a foundation for those who

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# **FIND A REPEATER**

# **FIND A HAM**



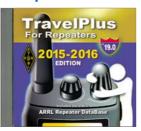
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- Thousands of FM voice and ATV repeater frequencies.
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Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

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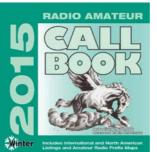
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The first and only database with more than 2,220,000 callsigns; it is the most complete callsign database available. Includes 6 months of internet updates and HamCall.net Gold Password for full access to HamCall.net website including callsign search, advanced search, and DX Spots.



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- Install to hard drive or run from DVD.
- · Country flag & map for each call sign.
- Search by callsign, class, name, street address, city, state, postal code, county, country, or QSL manager.
- Double click on e-mail address to send email or a web address to visit it.
- · Interactive world map display.
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- Search U.S. stations by callsign, last name, and city.
- Search international by callsign, last name, city. Text search by name, street, city, province, or region after selecting country.
- Unique sound output of Morse code alphabet can be used by the blind or anyone learning Morse code.
- · Windows / DOS platform.

- Windows clipboard tool for single label or applications. Import data into logging spread sheet, word processor, or label printing program. Logging program interface available.
- Listings of clubs, "Then and Now" call changes, military, and silent keys.
- Text files listing prefixes by countries (40 zones), DXCC countries list, census of amateur prefixes, QSL bureaus, reciprocal operating agreements, 10-meter beacons, 6-meter beacons, international "Q" signals, and more.

# **Catalog Prices**

HRO discount prices shown are current as of March 1, 2015, when this catalog was assembled.

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I question pool for the
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Permit (MROP), the
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(GROL), and the Element

8 pool for the RADAR Endorsement. Many employers require these licenses for jobs in marine, aero, safety, and municipal positions. Gordo and his team have written clear explanations for all the Q&A to make studying for these exams educational and fun. If you're an Extra Class ham, many of the technical/math questions will look familiar to you. Fully-illustrated to aid your learning. Book includes a searchable CD-ROM with all FCC Rules for Parts 2, 13, 23, 73, 80 and 87.

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all Element 4 Q&A
reorganized into logical
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assembly tips and 100 electronic circuits you can build and test. Forrest has written dozens of books, hundreds of articles, invented scientific devices and travelled to the Amazon for NASA, and loves to share his knowledge with eager students!

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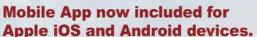
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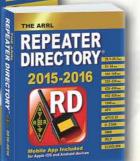




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The new standard in affordable two-way communications





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- 2 Year Warranty\*

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# NEXT GENERATION



# ID-5100A





IC-7851

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# ICOM HAS YOU COVERED











# E By Storm Taking



The TS-480HX









# The Legend Continues





TS-590S



The TS-590SG



Back in 1973, Kenwood introduced the first affordable HF radio to the world, the legendary TS-520... 27 years later, the TS-570D and the TS-570S with 6 meters were by far the most popular HF and HF+6 transceivers on the market.

Be witness to the evolution of KENWOOD's pride and joy - the TS-590S HF transceiver - pushing performance and technology to its utmost limit, with the receiver configured to capitalize on roofing filter performance and IF AGC controlled through advanced DSP technology. Enter the TS-590SG. A new generation of high performance transceiver, with the type of high level response to meet DX'ers needs.

Don't be fooled by big boxes, high price tags, complex operation and broken promises. As Kenwood continues to build outstanding products with unparalleled performance and great value, it's no surprise Kenwood is rated as one of the leading choices for HF radios.

It's not too late to own an HF legend because we still build them today.







# System Fusion

# Get the Integrated Solution

# System Fusion provides total integration of Digital and Conventional FM

System Fusion delivers integrated operational functionality that enables you to communicate with other Amateur Radio operators using conventional FM mode while you enjoy advanced digital communication features, such as image, text data and GPS position data using C4FM digital. System Fusion is designed to enable seamless communication between conventional FM and C4FM Digital Communication using a single unified platform.

# AMS (Automatic Mode Select)

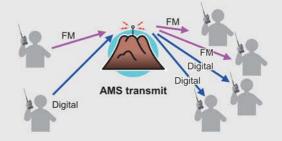
Instantly recognizes whether the received signal is C4FM digital or conventional FM.

Voice FR AMS Date FR Mode

Analog FM Mode

# FM Friendly Digital

System Fusion can be used in multiple ways, for digital communication, for conventional FM communication and even internet communication.



# New Functions Enabled by C4FM Digital Communication

#### Digital Group Monitor (GM) Function

Automatically checks whether members registered to a group are within the communication

communication range.



# Snapshot Function (Image Data Transmission)

- Image data can be sent easily to other C4FM FDMA digital transceivers.
- Image data can be displayed on the screen. (FTM-400DR ONLY)



# **Smart Navigation Function**

- Real-time navigation function enables Location checking at any time.
- Backtrack function for returning to your departure Point.



# System Fusion Lineup





C4FM FDMA 144/430 MHz DUAL BAND 5W DIGITAL/FM TRANSCEIVER

# *FT1DR*

- Three digital modes and a Conventional FM mode
- Automatic Mode Select (AMS) Function
- Snapshot Picture Taking Capability
- Digital Group Monitor Function
- Smart Navigation Function

# FTM-400DR HRI-200

- Three digital modes and a Conventional FM mode
- Automatic Mode Select (AMS) Function
- 3.5-inch Full Color Touch Panel Operation
- Snapshot Picture Taking Capability
- Digital Group Monitor Function

C4FM FDMA 144/430 MHz DUAL BAND

50W DIGITAL/FM TRANSCEIVER

Smart Navigation Function

In addition to the convenient and easy to use digital function, advanced VoIP wireless WIRES-X



# Introducing The Most Advanced Digital Portable

C4FM/FM 144/430 MHz DUAL BAND DIGITAL TRANSCEIVER





# Easy Operation with Large Touch Panel Display

Advanced touch panel operation with huge 1.7"x1.7" Full-dot matrix display, ensuring easy operation and optimizing performance.

# **New Digital Features**

Digital Group Monitor display shows whether group members are within communication range, and displays the distance and the direction.



146.520

**Group Monitor** 

# Loud and Clear Voice Technology

C4FM digital 9600 bps data transmission speed attains high quality voice communication, and provides other valued digital features.



# C4FM Digital with FM Friendly AMS

The modulation mode of your station is automatically selected according to the received signal. AMS (Automatic Mode Select) is designed to enable seamless intercommunication between FM and C4FM digital.



# **System Fusion Compatible**



This device has not been approved by the FCC. This device may not be offered for sale or lease or be sold or leased until approval of the FCC has been obtained. The information shown is preliminary and may be subject to change without notice or obligation.

**Actual Size** 

# Exciting New C4FM/FM Digital Mobile Transceiver



# Advanced visibility and operability with full color touch panel Operation



**Band Scope Screen** 



Altitude Screen

# 3.5-inch full color touch panel operation



The icon symbols, multi-function key display and pop-up messages are all displayed in high-resolution color thanks to the full-color, high luminance TFT liquid crystal screen.



**Smart Navigation Screen** 



Frequency Direct Input Screen

# COMPACT HF TRANSCEIVER WITH

A superb, compact HF/50 MHz radio with state-of-the-art IF DSP technology, configured to provide YAESU World-Class Performance in an easy to operate package. New licensees, casual operators, DX chasers, contesters, portable/field enthusiasts, and emergency service providers- YAESU FT-450D...This Radio is for YOU!



HF/50 MHz 100 W All Mode Transceiver

With Built-in Automatic Antenna Tuner

**Illuminated Key buttons** 

# 300 Hz/500 Hz/2.4 kHz CW IF Filters

- Large informative Front Panel Display, convenient Control knobs and Switches
- The IF DSP guarantees quiet and enjoyable high performance HF/50 MHz operation



Handy Front Panel Control of Important Features including:

**CONTOUR Control Operation** 

The Contour filtering system provides a gentle shaping of the filter passband.

Manual NOTCH

Highly-effective system that can remove an interfering beat

For the latest Yaesu news, visit us on the Internet: http://www.yaesu.com

Foot stand

Classically Designed Main Dial and Knobs

Dynamic Microphone MH-31A8J Included

Digital Noise Reduction (DNR)

Dramatically reduces random noise found on the HF and 50 MHz bands.

•IF WIDTH

The DSP IF WIDTH tuning system provides selectable IF passband width to fight QRM

SSB - 1.8/2.4/3.0 kHz, CW - 300 Hz/500 Hz/2.4 kHz Digital Microphone Equalizer

Custom set your rig to match your voice characteristics for maximum power and punch on the band.

• Fast IF SHIFT Control

Vary the IF SHIFT higher or lower for effective interference reduction / elimination.

#### More features to support your HF operation

incredible ±1 ppm/hour (@+77°F, after warm-up) stability ●CAT System (D-sub9 pin): Computer programming and Cloning capability Large, Easy-to-See digital S-meter with peak hold function Speech Processor QUICK SPLIT to automatically Offset transmit frequency (+5 kHz default) TXW to monitor the transmit frequency when split frequency operation is engaged Clarifier Built-In Electronic Keyer CW Beacon (Up to 118 characters using the CW message keyer's 3 memory banks) 

CW Pitch Adjustment (from 400 to 800 Hz, in 100 Hz steps) ●CW Spotting (Zero-Beating) ●CW Training Feature OCW Keying using the Up/Down keys on the micro-

seconds each @20 second Digital Voice Recorder @Dedicated Data Jack for FSK- RTTY operation Oversatile Memory System, up to 500 memory channels that may be separated

■ The rugged FT-450D aluminum die-cast chassis, with its quiet, thermostatically

MOS FET RD100HHF1

controlled cooling fan

provides a solid foundation for the power

amplifier during long hours of field or home

contesting use.

The radio

YAESU USA 6125 Phyllis Drive, Cypress, CA 90630 (714) 827-7600

●10 kHz Roofing filter ●20 dB ATT/IPO ●Built-in TCXO for phone Two Voice Memories (SSB/AM/FM), store up to 10

Specifications subject to change without notice. Some accessories and/or

options may be standard in certain areas. Frequency coverage may differ in

some countries. Check with your local Yaesu Dealer for specific details.

into as many as 13 Memory Groups OCTCSS Operation (FM) My Band / My Mode functions, to recall your favorite operating set-ups O Lock Function OC.S. Switch to recall a favorite Menu Selection directly Opynamic Microphone included OIMPOR-TANT FEATURES FOR THE VISUALLY IMPAIRED OPERA-TOR - Digital Voice Announcement of the Frequency, Mode or

# FT-991

HF/VHF/UHF ALL MODE TRANSCEIVER

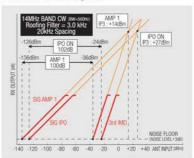


New generation all-band transceiver FT-991 offers full-fledged support for all modes including HF/50/144/430 MHz in a single compact unit

- Triple conversion with 1st IF frequency of 69.450MHz for all bands
- Narrow band 3 kHz roofing filter provided in standard configuration realizes excellent adjacent multi signal characteristics
- Features the highly acclaimed FTDX series quad mixer, along with a dedicated VHF/UHF mixer
- Highly effective interference removal functions are great for stress-free QSOs on the DX and Contest scene
- Final Stage with Ample Power Reserves: 100 W for HF/50 MHz Bands and 50 W for VHF/UHF Bands
- 3.5 inch full color touch panel display for convenient viewing and operation
- Advanced Spectrum Scope Function with Waterfall Display Capability
- Advanced technologies fully utilize the potential of C4FM Digital including high-quality transmit audio, AMS, and Group Monitor functions
- \* Data FR mode (high speed data communication mode) is not supported therefore image send/receive by C4FM digital is not possible.



3 kHz and 15 kHz Roofing Filter



IDR (IMD Dynamic range) / IP3 (3rd-Order Intercept Point) characteristics





HF/50 MHz 100 W Transceiver

# FTDX3000

New Crystal Roofing Filters provide ultimate weak signal receiver performance in crowded, strong signal environments



# The amazing Crystal Roofing Filter performance

The Down conversion 9 MHz 1st IF frequency receiver construction, can realize narrow 300 Hz (optional), 600 Hz and 3 kHz bandwidth roofing filters.

# Outstanding receiver performance, the heritage of the FTDX 5000!

The high dynamic range IP3 performance that was realized and proven in the FTDX5000.

IF DSP provides effective and optimized QRM rejection

# Independent Frequency display

The newly developed LCD has a wider viewing angle and higher contrast.

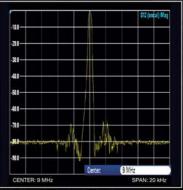
4.3-inch Large and wide color LCD display with high resolution

High Speed Spectrum Scope built-in

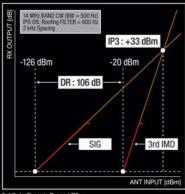
AF SCOPE display and RTTY/PSK encoder/decoder (optional)

#### Other features

The specialized Receiver amplifier for 50 MHz is built in / Three antenna connectors are provided / The "ANT-3" terminal may be assigned to "RX-only" / Signal output for an external receiver and the 9 MHz IF output are furnished / High speed Automatic antenna tuner built in / Optional  $\mu$ -tune unit available / USB interface equipped



Characteristics of the Crystal Roofing Filter (300 Hz)



3rd Order Dynamic Range / IP3



YAESU USA

6125 Phyllis Drive, Cypress, CA 90630 (714) 827-7600

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# The Answer ...

# Equipped with Extra Sharp 6-pole Crystal Roofing Filters The Premium HF / 50 MHz Transceiver FT DX 5000

The Newly designed 9 MHz 1st IF of the FT DX 5000 main receiver implements sharp 6-pole\* crystal roofing filters. \*8-pole / 3 kHz Superior close-in dynamic range affords the serious DX' er the best performance possible.





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Not All Cable Assemblies are Created Equal... See the ABR Difference.







2213A RG213/U MIL-SPE		- 210/07/2021 - 21100
Non-contaminating Direct-E W/SILVER-TEFLON PL259		
Attenuation per 100ft		
0.6dB @ 10MHz	3.43kW	87%
1.0dB @ 30MHz	1.95kW	79%
1.4dB @ 50MHz	1.5kW	73%
2.4dB @ 150MHz	.83kW	57.1%
4.5dB @ 450 MHz	.45kW	35.8%
Part #	Leng	th/Ft
2213A-PL-25		
2212A DI 50		EO.

2213A-PL-75 2213A-PL-100 2213A-PL-150

	50
	75
	100
	150
_	14 501
	1.5" long
	w/Pull Tabs-

Protects PL259 Connectors. Sold in

packages of 10

218XATC RG8X (240UF) Non-contaminating Direct-I W/SILVER-TEFLON PL259	Burial Ultra-Violet Re	OF HST each en
Attenuation per 100ft 0.9dB @ 10MHz 1.4dB @ 30MHz 2.1dB @ 50MHz 3.6dB @ 150MHz	Power Rating	Efficiency%
0.9dB @ 10MHz	2.16kW	80%
1.4dB @ 30MHz	1.24kW	69%
2.1dB @ 50MHz	0.96kW	62%
3.6dB @ 150MHz	0.55kW	43.5%
6.3dB @ 450MHz	0.31kW	23.2%
Part #	Lengt	
218XATC-PL1.5	1.5	
218XATC-PL-3	3	
218XATC-PL-6		
218XATC-PL-9	9	
218XATC-PL-12		
218XATC-PL-18		
218XATC-PL-30		
218XATC-PL-40		
218XATC-PL-50		
218XATC-PL-75		
218XATC-PL-100		
218XATC-PL-125		5

25400F 400-FLEX (RG8/UTNon-contaminating Direct-Br W/SILVER-TEFLON PL259	urial Últra-Violet Re & WEATHERPRO	esistant Jacket. OF HST each en
Attenuation per 100ft	Power Rating	Efficiency%
Attenuation per 100ft 0.5dB @ 10MHz	4.83kW	89.8%
0.8dB @ 30MHz	2.77kW	83%
1.1dB @ 50MHz	2.14kW	78.5%
1.8dB @ 150MHz	2.14kW 1.22kW	65.4%
3.3dB @ 450MHz	0.69kW	47.3%
Part #	Lengt	
25400F-PL-1.5		
25400F-PL-3		
25400F-PL-6		
25400F-PL-12		
25400F-PL-18		
25400F-PL-35		
25400F-PL-50	5	0
25400F-PL-75	7	5
25400F-PL-100		
25400F-PL-150		



Length/Ft

10

218XATC-PL-150 218XATC-PL-200

Suggested Applications

218XATC Series: Lightweight mobile, Dipole Antennas, as jumpers between equipment in tight places. Very Flexible

#### JACKET

Ultra Violet Resistant, Direct Burial.

2213A Series: Bands below 30MHz w/linear amplifiers. Solid Polyethylene Dielectic is robust and will stand up to HF high power over a long period of time (i.e. corona effect)

#### Flexible

#### JACKET

Ultra Violet Resistant.
 Direct Burial.

25400F Series: Great for frequencies 144MHz and higher. Double Shield=Shielding Effectiveness<90dB. Very Flexible.

#### JACKET

Ultra Violet Resistant. Direct Burial.

24400 Solid Center Conductor, use with stationary applications.

24600 Solid Center Conductor, use instead of

24600UF Stranded Center Conductor, Thermoplastic Rubber Jacket, flexible for a large

This is a guide only. Exceptions may apply. Direct your cable questions to:

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w/N Male plugs each end. Complete w/Weatherproof Heat Shrink Tubing (WP-HST) Attenuation per 100ft 0.4dB @ 10MHz 0.7dB @ 30MHz 0.9dB @ 50MHz 1.5dB @ 150MHz 2.7dB @ 450MHz Power Rating Efficiency% 3.33kW 85.6% 2.57kW 1.47kW 70.2% 83kW 53 6% Length/Ft Part # 24400-NM-50

24600 600-Type Solid Copper Cover Aluminum w/N Male plugs each end. Complete w/Weatherproof Heat Shrink Tubing (WP-HST) Length/Ft 24600-NM-100 ..

24600 600-Type Solid Copper Cover Aluminum w/PL259 plugs each end. Complete w/Weatherproof Heat Shrink Tubing (WP-HST)

Attenuation per 100ft Power Rating Efficiency% 0.2dB @ 10MHz 0.4dB @ 30MHz 0.5dB @ 50MHz 1.0dB @ 150MHz 1.7dB @ 450MHz 5.00kW 94.6% 90.7% 5 00kW 4.24kW 88.2% 2.41kW 80.1% 1.35kW 67.3% Part # Length/Ft 24600-PL-100

24600UF LMR600-Flexible Stranded Copper w/N Male plugs each end. Complete w/Weatherproof Heat Shrink Tubing (WP-HST)

24600UF-NM-100

Attenuation per 100ft 0.3dB @ 10MHz 0.5dB @ 30MHz 0.7dB @ 50MHz 1.2dB @ 150MHz Power Rating Efficiency% 5.00kW 93 5% 4.55kW 88.9% 3.51kW 85.9% 76.5% 2.1dB @ 450MHz 1.12kW Part # Length/Ft

100

	1/2" Tinned Copper Flat Ground w/#10 Stud Ring Terminals. Quick Easy Grounding Terminations.	
	Part #	Length/Ft
	233/2-4X-12	12
	233/2-4X-10	
	233/2-4X-5	
	233/2-4X-3 233/2-4X-1	
IN	DUSTR American Built & Re	

1" Tinned Copper Flat Ground Braid, 7ga 85/Amps w/1/4" Stud Ring Terminals, Quick &

Easy Grounding Terminations

Part #

235-5X-20

235-5X-1

235-5X-5

235-5X-3

235-5X-1

# **AMPLIFIERS**





# IC-PW1 w/ Solid State Remote Control Head

Icom's linear amp provides wide frequency coverage with up to 1kW output requiring only

a 100-Watt maximum input. The duty cycle is 100 percent with full breakin operation. It covers amateur bands 160 to 15 meters plus 6 meters. Includes an automatic antenna tuner for all bands. Internal circuitry allows the ALC to be adjusted over a wide range so the PW1 can be used with almost any rig, not just Icom. Operates on 110 or 220 VAC 50 or 60 cycle.

# <u>YAESU</u>

The radio

# Quadra System

\$CALL -HRO Price



Use this linear amp to operate on HF (160–15 meters) and 6 meters. It has automatic band switching with the FT-1000D, FT-1000MP, FT-920, FT-990, and the FT-900 HF radios. The amp has 8 MRF150 power MOSFet transistors designed into 4 units of 2 transistors in a push-pull circuit at 48 VDC. The separate power supply, the VP-1000, allows easy installation. There are two input voltages, 117 VAC or 220 VAC. Output power

is a function of the power supply voltages. At 220 VAC there is 1000 Watts out on HF and 500 Watts on 6 meters. At 117 VAC the output is reduced to 500 Watts on HF. The Quadra has a built-in high speed tuner to match the amp to your antennas. It has four antenna outputs and two inputs. The multifunction omni-glow LCD display shows the status of the amplifier. There is automatic system monitoring with VSWR protection.

# **Amplifier Specifications**

	Model	Frequency Range	Modes	Power In	Power Out	Voltage	Current	Pre- amp	Connector	Wgt	HRO Discount Price
Ameritron	AL-1500	160-15 M*	SSB. CW	65 W	1500+ W	220 VAC	15 A	1 -	SO-239	50 lbs#	CALL
	AL-1200	160-15 M*	SSB. CW	100 W	1500 W	220 VAC	27	( <b>-</b>	SO-239	50 lbs#	CALL
	ALS-1300	160-15 M*	SSB. CW	90 W	1200 W	220 VAC	15 A	_	SO-239	22 lbs#	CALL
	ALS-1306	160-15 M*	SSB. CW	100 W	1200 W	110/220 VAC	25/12 A		SO-239	22 lbs \$	CALL
	ALS-500M	160-15 M*	SSB. CW	100 W	500 W	13.8 VDC	80 A	-	SO-239	7 lbs	CALL
	AL-572	160-15 M*	SSB. CW	100 W	1300 W	110/220 VAC	12 A 110V	30-	SO-239	40 lbs	CALL
	ALS-600	160-15 M*	SSB. CW	100 W	600 W	110/220 VAC	16 A 110V		SO-239	13 lbs#	CALL
	AL-80B	160-15 M*	SSB, CW	100 W	1000 W	110/220 VAC	15/10 A	-	SO-239	54 lbs	CALL
	AL-800	160-15 M*	SSB, CW	100 W	750 W	110 VAC	12 A	·-	SO-239	67 lbs	CALL
	AL-800H	160-15 M*	SSB, CW	55 W	1500 W	240 VAC	9 A	10-	SO-239	69 lbs	CALL
	AL-811	160-15 M*	SSB, CW	75 W	600 W	110/220 VAC	8/4 A	y :-	SO-239	40 lbs	CALL
	AL-811H	160-15 M*	SSB, CW	75 W	800W	110/220 VAC	8/4 A	7.0	SO-239	41 lbs	CALL
	AL-82	160-15 M*	SSB, CW	100 W	1500 W	220 VAC	15 A		SO-239	52 lbs#	CALL
lcom	IC-PW1	160-15 M*	SSB, CW	100 W	1000 W	110/220 VAC	20/15 A	-	SO-240	55 lbs	CALL
Mirage	A -1015G	50-54 MHz	All	10 W	150 W	13.8 VDC	23 A	yes	SO-239	5 lbs	CALL
	B-34	144-148 MHz	All	2 W	35 W	12-15 VDC	4 A		SO-239	2 lbs	CALL
	B-34G	144-148 MHz	All	2W	35 W	12-15 VDC	4 A	yes	SO-239	2 lbs	CALL
	BD-35	143-149/430-450	FM	7 W	45 W	12-15 VDC	7 A		SO-239	3 lbs	CALL
	B-310G	144-148 MHz	All	4 W	100 W	13.8 VDC	15 A	yes	SO-239	3 lbs	CALL
	B-1018G	144-148 MHz	All	10 W	160 W	13.8 VDC	25 A	10 dB	SO-239	5 lbs	CALL
	B-2518G	144-148 MHz	All	25 W	160 W	13.8 VDC	25 A	10 dB	SO-239	5 lbs	CALL
	B-5018G	144-148 MHz	All	50 W	160 W	13.8 VDC	24 A	yes	SO-239	5 lbs	CALL
	C-22G	222-225 MHz	All	2 W	20 W	13.8 VDC	5 A	yes	SO-239	2 lbs	CALL
	C-211G	222-225 MHz	All	2 W	110 W	13.8 VDC	20 A	yes	SO-239	5 lbs	CALL
	C-1012G	222-225 MHz	All	10 W	120 W	13.8 VDC	5 A	yes	SO-239	5 lbs	CALL
	C-2512G	222-225 MHz	All	25 W	120 W	13.8 VDC	20 A	yes	SO-239	5 lbs	CALL
	D-1010N	430-450 MHz	All	10 W	100 W	13.8 VDC	20 A		N type	5 lbs	CALL
	D-3010N	430-450 MHz	All	30 W	100 W	13.8 VDC	20 A	( ) —	N type	5 lbs	CALL
	D-100-ATVN	429 MHz ATV	All	1 W	52 W	13.8 VDC	20 A	1-	N type	6 lbs	CALL
	D-1010-ATVN	430 MHz ATV	All	10 W	100 W	13.8 VDC	20 A	(i = 1)	N type	6 lbs	CALL
ACOM	A1000	160-10 M + 6M	SSB, CW	60 W	1000 W	200-240 VAC	2000VA	(i)—	SO-239	48.5 lbs	CALL
	A1010	160-10 M	SSB, CW	50 W	500 W	100/240 VAC	1200VA	: =	SO-239	39.7 lbs	CALL

\*Owner modifiable for 10 m #Add 35 pounds. Transformer shipped in separate package. \$ Add 12 pounds. Transformer shipped in separate package.

†VP-1000 power supply inc.

## Expect long production delays





**ACOM Amplifiers Shown Require No Antenna Tuner for** VSWR of 3:1 or Less





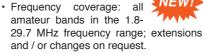
#### **ACOM 1000**

The ACOM 1000 HF Linear is the world's best value in an amateur HF amplifier. It gives you a comfortable 1000 Watts output on all amateur bands from 160 through 6 meters.

- · Frequency coverage: All amateur bands 1.8-54 MHz. MARS / CAP ready model.
- · Power output: 1000W PEP or continuouscarrier. no mode limit.
- Intermodulation distortion: better than 35 dB below rated output.
- · Hum and noise: Better than 40 dB below rated output.
- · Harmonic output suppression: 1.8-29.7 MHz - better than 50 dB below rated output; 50-54 MHz - better than 66 dB below rated output.
- · Input and output impedances:
  - nominal value: 50 Ohm unbalanced, UHF (SO239) type connectors;
  - input circuit: broadband, VSWR less than 1.3:1, 1.8-54 MHz continuously (no tunings, no switching);
  - bypass path VSWR less than 1.1:1, 1.8-54 MHz continuously;
  - output matching capability: better than VSWR 3:1 or greater at reduced output lev-
- RF gain: 12.5 dB typically, frequency response less than 1 dB (50 to 60 W drive power for rated output).
- Primary power: 170-264 V (200, 210, 220, 230 and 240 V nominal taps, 100, 110 & 120 V taps on request, +10%-15% tolerance), 50-60 Hz, single phase, 2000 VA consumption at rated output.
- Complies with CE safety and EMC requirements as well as FCC regulations (6,10 and 12 m bands lock provided).
- · Size & weight (operating):
  - WxDxH: 422 x 355 x 182 mm, 22 kg.
- (16.6 x 14 x 7.2 inches, 48.5 lbs.)
- · Operating environments:
- temperature range: 0...+50 degs. Celsius;
- humidity: up to 75% @ +35 degs. Celsius.
- height: up to 3000 m above sea level without output deterioration. HRO Price \$CALL



#### **ACOM 1010**



- · Power output: 700 W PEP or 500 W continuous carrier.
- · Intermodulation distortion: better than 35 dB below rated output.
- · Hum and noise: better than 40 dB below rated output
- · Harmonic output suppression: better than 50 dB below rated output.
- · Input and output impedances:
  - nominal value: 50 Ohm unbalanced, UHF (SO239) type connectors;
  - input circuit: broadband, VSWR less than 1.3:1, 1.8-30 MHz continuously (no tunings, no switching);
  - bypass path VSWR less than 1.1:1, 1.8-30 MHz continuously, 200 W maximum:
  - output (antenna) impedance matching capability: VSWR up to 3:1 or higher.
- 50 to 70 W drive power for rated output.
- Primary power: 85-132 V / 170-264 VAC (100, 110, 120, 200, 210, 220, 230 and 240 V nominal taps), +10% -15% tolerance), 50-60 Hz, single phase, 1200 VA.
- Size and weight (operating): W x D x H: 406 x 315 x 150 mm, 18 kg. (16 x 12.4 x 5.9 inches, 39.7 lbs.)
- · Antenna matching can be achieved in less than 10 seconds and at a guarter of nominal output power, which produces lower risk of interference to other stations and greater safety to the amplifier components. HRO Price \$CALL



# ACOM 2000SW Remote **Antenna** Switch



The 2000SW is a rugged, high-performance coaxial antenna switch. It is a single-pole, 10-position coaxial design, to select quickly from multiple antennas or other RF loads. The switch can handle up to 5 kW, and operate at VSWR as high as 3:1 (at reduced power). Advanced mechanical design shields the 2000SW internal circuitry and high-speed relays from the elements. Fully protected against a variety of adverse conditions including antenna mismatch, hot-switching and lightning, it is the ideal solution for safe remote switching of multiple antennas. HRO Price \$CALL



NEW!

HF POWER AMPLIFIERS

# **ACOM 1500**

- · Frequency coverage: all amateur bands 1.8-54 MHz; extensions and / or changes on request.
- · Power output: 1500 W PEP or 1200 W continuous carrier, no mode limit.
- Intermodulation distortion: better than 35 dB below rated output.
- · Input and output impedances:
- nominal value: 50 Ohm unbalanced, UHF (SO239) type connectors:
- bypass path VSWR less than 1.1:1, 1.8-54 MHz continuously;
- output matching capability: better than VSWR 3:1 or greater at reduced output levels.
- · 60-85 W drive power for rated output.
- Primary power: 85-132 V and 170-264 V (100, 110, 120, 200, 210, 220, 230 & 240 V nominal taps, +10%-15% tolerance), 50-60 Hz, single phase, 3500 VA consumption at rated output. **HRO Price \$CALL**

**ACOM** 

2000





- · RF output: 1500-2000 W keyed carrier or SSB - no time limit. Constant carrier modes 1500 W RF output - no time limit with auxiliary cooling
- Frequency coverage: All amateur bands 1.8-24.5 MHz. 28 Mhz only with modification.
- Band change / tune up: initial output matching process in less than 3 seconds.
- Tuning memories: Non-volatile for up to 10 antennas per frequency segment.
- Drive power: typically 50 W for 1500 W out.
- · Input impedance: 50 ohms nominal. VSWR <1.5:1.
- Output tolerance: up to 3:1 VSWR (2:1 on 160 m) at full rated output.
- T / R and keying: vacuum relay: QSK capable.
- Tubes and circuit: 4CX800A/GU74b tetrodes (2); resistive grid, PI-L output with RF negative feedback.
- · ALC: negative going, grid derived, -11 v maximum
- Metering: comprehensive. Remote control unit provides flexible monitoring of all amplifier parameters. PC interface (RS-232) plus remote phone line interrogation feature.
- · No controls on RF unit except ON / OFF. RF unit may be located up to 3 meters (20 m with optional cable) from RCU.

**HRO Price \$CALL** 



# **BATTERIES**

For more Ameritron Amps. visit hamradio.com

## AL-811H

800 Watt PEP output. This low-cost desktop linear HF amplifier gives plenty of power to burst through



QRM. This will plug right into a 120 VAC outlet. Four tough 811A transmitting tubes, heavy-duty power supply, all HF band coverage, operate / stand-by switch, transmit LED, plus more! UPS shippable. The AL-811 is similar but has three 811A tubes, 600 Watts PEP output.

### AL-80B



1 kW PEP output from a compact, desktop linear that plugs into 120 VAC outlet. Classic 3-500G tube. inrush current protection, two year limited warranty.

## **ALS-600**

No tuning, no fuss, no worries - just turn on and operate. 600 Watts PEP /500 W CW, 1.5-22 MHz, instant bandswitching,



protected. 120 / 220 VAC. 9-1/2 W x 6 H x 12 D inches. Includes matching transformer power supply.

ALS-600S ALS-600 with 10 pound switching power supply.

# 24 Hour FAX **Order Numbers**

Anaheim 714-533-9485 Atlanta 770-263-9548 Burbank 818-842-5283 Denver 303-745-7394 **New Castle** 302-322-8808 Oakland 510-534-0729 Phoenix 602-395-1244 Plano 972-424-4969 **Portland** 503-684-0469 Salem 603-898-1041 San Diego 858-560-1705 Sunnyvale 408-736-9499 Woodbridge 703-494-3679

# **Soldering Equipment**

# Weller

#### WLC-100CT

# **Soldering Station**

HRO Price \$79.95

- 40 Watt solder station, 110 volts.
- Adjustable 5-40 Watts with safety guard solder iron.
- Includes holders, sponge and tip.





# SOLDERING PRODUCTS



# **Soldering Iron**

25-60 W - HRO Price \$19.99

## JT-009

**Three Replacement Tips** for J-060VT HRO Price \$5.99



**Soldering Station** 

WTCPTCT

HRO Price \$189.95 A soldering station is a must for every ham shack.

- · Quick disconnect plug for iron and lighted on / off switch.
- · Special "closed loop" method of controlling maximum tip temperature.
- · Transformer powered with macro style, low voltage, temp controlled soldering
- · Power unit housed in impact resistant
- · Separate conductor grounds iron tip and terminates at third pin of power cord.
- · Uses PT series tips and operates at 600°F. 700°F and 800°F.



Solder gun, 200 / 300 Watts. Great for soldering coax connectors outside.



HRO Price \$49.95

100/140W, 110 V. Ready to

solder in 6 seconds. Finger tip selection of high / low power. Great for soldering coax connectors.

# **NiMH Batteries and Charger**





MH-C801D

# 8-Cell One Hour Charger

Charge eight NiMH batteries in within one hour with Maha's charger.

# NiMH Rechargeable BatteryCells

Model	Volts (Vdc)	Capacity (Mah)	Description	HRO Price
MH-4AA270	1.2	2700	4 pack "AA" size NiMH Cells	\$16.95
MH-RAA-I4	1.2	2400	4 pack "AA IMEDION NiMH" cells	\$16.95
MH-RAAA-I4	1.2	950	4 pack "AA IMEDION NiMH" cells	\$9.95

# **SWR/WATT METERS**

# DIAMOND

#### SWR / Watt Meters



SX-40C

Diamond RF SWR / Watt meters cover the full range of amateur applications. The SX-20C and SX-40C are the newest models. The SX-40C can be used on 220 MHz with a correction factor.



SX-1100

SX-240

All models: · Illuminated meters.

- · Require 12 volts DC.
- · Low insertion loss generally less than 0.2 dB in HF range and 0.3 dB at higher frequencies.
- · Power measurement accuracy generally ±10% on higher power ranges and ±5% on the lower.
- · Low loss SO-239 connectors are used except for the high frequencies as noted in the table.
- · Measurements are forward power, reflected power, SWR and, on selected frequencies, PEP monitor.

### **Diamond Meters**

Model	Freq MHZ	Power Ranges	Con- nector	HRO Price
SX-20C 3.5-30 50-54 130-150		30/300 W	SO-239	\$89.95
SX-40C	144-470	30/300 W	SO-239	\$79.95
SX-100	1.6-60	30/300/ 3KW	SO-239	\$124.95
SX-200	1.8-200	5/ 20/ 200 W	SO-239	\$89.95
SX-240 3.5-30 50-54 130-150 430-450		30/300/ 3KW	30/300/ 3KW	\$299.95
SX-400	130-150	5/ 20/ 200 W	SO-239	\$109.95
SX-600 1.8-160 140-525		5/ 20/ 200 W	SO-239	\$179.95
SX-1100 1.8-160 430-450 800-930 1230-130		5/ 20/ 200 W	SO-239 Type N Type N Type N	\$199.95



CMX-2300 **HRO Price** \$224.95

Twin cross-needle meters in a single case. Forward power, re-

flected power, and SWR are displayed simultaneously. Each meter has a -30 db (nominal) attenuated BNC jack to monitor wave form and frequency. Both meters can operate at the same time. 12V DC jack to light the meters. SO-239 connectors.

Meter 1 1.8-200 MHz Max power: 3 kW (HF) 1 kW (VHF)

Power ranges: 30 / 300 / 3 kW.

Meter 2 140-525 MHz Max power: 200 Watts Power ranges:

20 / 50 / 200 Watts Impedance: 50 Ohm VSWR: 1.2:1 or less Insertion loss: 0.2 dB or less.



## PM2000A Wattmeter

The PM2000A measures and displays forward power (up to 2000 W), reflected power, and SWR simultaneously on its dual movement meter system in the frequency range of 1.8 MHz to 60 MHz. Accuracy of the readings is assured because the



PM2000A features a true shielded directional coupler. The backlit meter can display either peak or average power readings with a Peak Hold function, and has 300 and 2000 Watt range settings. PM-2000A HRO Price \$184.95

The PM2000AM mobile version has a remote coupler that can be mounted up to 14' from the display head.

- · PL259 coax connector.
- 115 VAC to 12 VDC adapter included.
- Size: 4.5" x 3.25" x 3.25" deep.
- Weight 1.2 lbs. / 0.55 Kg.





MFJ-267

# with Dummy Load

Dry Dummy Load / SWR / Wattmeter combination. Three-inch cross-needle SWR meter, 1500 Watt dry load. 1.8 to 30 MHz. Perforated metal.

#### **MFJ-868**

Giant SWR / Wattmeter measures 6.5 inches diagonally across face. Covers 1.8 to 30 MHz.

#### MFJ-867

Giant VHF/UHF SWR / Wattmeter. Same size as MFJ-868

# MFJ-862

Covers 144 / 220 / 440 MHz. 30 / 300 Watts forward, 6 / 60 Watts reflected ranges. 5.64 W x 2.5 H x 2.25 D inches. Has one sensor for all three bands.



- · Cross needle design reads forward, reverse and VSWR simultaneously. no calibration required.
- · Easy to read meter.
- PEP monitor function.
- · Illuminated meter, 12 VDC plug pro-



	CN-101		
Frequency	1.8 - 150 MHz		
Power Range	15 /150 / 1.5 kW		
Power Rating	1.5 kW (1.8-60 MHz) 1 kW (144 MHz)		
SWR Detection	4 W minimum		
HRO Price	\$99.95		



# **Professional Series** HRO Price \$189.95

- · Easy to read, illuminated, extra large meter face with mirrored graph in .5 watt increments.
- · Cross needle design reads forward, reverse and VSWR simultaneously. no calibration required.
- · CN-801HP3 is the new 3000 Watt version
- 12 VDC plug provided.

#### Daiwa 801 Meters

8	CN-801 HP3	CN-801 V	CN-801 S-II
Frequency	1.8-200 MHz	140-525 MHz	900- 2500 MHz
Power Range FWD	20 / 200 / 2 kW	20 / 200 W	2/20 W
Impedance	50Ω	50Ω	50Ω
Connectors	SO-239	SO-239	N-Type
SWR Detection	5 W minimum	5 W minimum	0.5 W minimum
HRO Prices	\$189.95	\$149.95	\$239.95

# **ANALYZERS**

# **SWR Analyzers**

#### MFJ-259C

SWR Analyzer™ with impedance meter reads antenna SWR, complex RF impedance, resistance (R) and reactance (X) or magnitude (Z) and phase (degrees), coax cable loss in



dB, coax cable length and distance to fault, return loss, reflection coefficient, inductance and capacitance. Tells battery voltage, has huge LCD digital readout with builtin frequency counter, side-by-side SWR and RF impedance meters, Ni-Cd / Ni-MH internal battery charger, battery saver feature, low battery warning, and easyaccess batteries. Has smooth, reduction drive tuning. Truly portable. Uses 10 alkaline, Ni-Cd or Ni-MH batteries (not included) or 110 VAC with optional MFJ-1312D.

# MFJ-269C

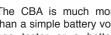


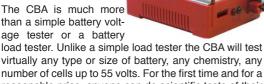
Covers 530 kHz to 230 MHz plus 415 to 470 MHz HF / VHF / UHF. Has all of the features of the MFJ-259B plus a 12-bit A/D converter (gives much better accuracy and resolution), Coax-Calculator™ (calculates coax line length in feet given coax length in electrical degrees and vice versa) and coaxial characteristic impedance input (zero to six hundred ohms).

# **Battery Analyzer**



# Computerized **Battery Analyzer CBAIV**





virtually any type or size of battery, any chemistry, any number of cells up to 55 volts. For the first time and for a reasonable price, anyone can do scientific tests of their batteries by letting their computer do all the work. The CBA is capable of higher test rates than other testers: up to 40 amps or 150 Watts, whichever is higher. It not only tests the total amount of energy stored in a battery (capacity in amp-hrs), but it graphically displays and charts voltage versus amphours.#58250-1014 HRO Price \$149.95

# **Antenna Analyzers**

# MET



# **CAA-500** 1.8-500 MHz **Antenna Analyzer**

Commercial Grade SWR / Impedance Analyzer Range: 1.8 - 500 MHz (including 222 MHz band).

Check antenna installations in just seconds. Determine

SWR and resonance instantly.

Makes SWR adjustments quick and easy. Both SWR and impedance measurements are provided simultaneously. Precision analog meter provides SWR / impedance changes in real time. HRO Price \$439.95

# **Impedance Analyzer**

# **Timewave Technology**



# **AntennaSmith™** TZ-900

Analyze an antenna system in real time with customized graphs for individual installations. Uses a full color TFT LCD graphic display. Show SWR plot or Smith chart. With the push of a button the data can be stored for later on-screen comparison, download, analysis, and print-out. Upload your saved files to compare new and old antennas on the display in real time. (Uses the included Timewave AS-1 software on the PC. Requires Windows 98 or XP.)

Quickly tune the cursor to check your antenna system at the desired frequency while looking at the big picture on the graph. The direct digital synthesizer makes a great RF signal generator. Easily calibrate to WWV with 1 Hz frequency resolution. HRO Price \$999.95

# RigExpert

See the entire line of RigExpert analyzers on the web at hamradio.com

# **AA-30 HRO Price \$CALL**





instruments (vector impedance analyzers). Easy-to use measurement modes, as well as additional features such as memory storage and connection to a personal computer on



some, make RigExpert analyzers attractive for professionals and hobbyists. The graphical display of various parameters over a wide frequency range is a key feature of these analyzers, which significantly reduces the time required to adjust an antenna.

**AA-54** HRO Price - \$CALL

# **Palstar**



# Antenna **Analyzer ZM30**

The ZM30 is an automated micro-controlled SWR antenna analyzer with an 8 bit micro-controller with a precision low power DDS signal generator. It includes a self-calibrating reflectometer. The digital SWR at selectable

frequencies from 1 to 30 Mhz. It measures: SWR, impedance, reactance, inductors and capacitors, transmission lines, stubs, Q, and resonant frequency. There is a serial port for field upgradable software. Battery operated.

# **POWER SUPPLIES**

All of Astron's solid-state electronically regulated Power Supplies have fold-back current limiting to protect from excessive current, and a heavy duty heat sink. Output voltage: 13.8 VDC ±.05 volts. 220 V supplies available on special order at slightly higher price.

**RS-A Series** Standard power supply with on/off switch. Adjust voltage internally.

**SL Series** Slim Line design for low-profile looks.

# **Power Supplies**



**RS-M Series** Power supplies with front meters. One is for voltage and the other current.

MODEL

**RS-35M** 

SS Series High efficiency switching supplies specially filtered for use with communications equipment for all frequencies including HF. Heavy duty design, low profile, light weight and EMI filter.

**VS-M Series** Variable power supplies with separate volt and amp meters. Adjustable output: 2-15 volts.

RM Series 19" x 5 1/4" rackmount power supplies available with or without meters and may be variable. The new RM-60 comes with or without meters.

amp meters. Adjustable output: 2-15 volts.

RM Series 19" x 5 1/4" rack-

**Switching** 

**Power Supplies** 

# DAIWA

Daiwa switching power supplies are onethird the weight and one-half the size of conventional supplies.

Daiwa models can be used for DC motors that require peak starting currents and will accept input voltage from 90-130V.

Switching supplies can create pulse noise, but Daiwa engineers have isolated any noise and moved it out of the amateur bands creating a super quiet power supply.



# SS-330W 30 amp

- 30 amps continuous current (33 peak).
- Voltage adjustable: 5-15V.
- · Dual meters, amp and voltage.
- Automatic cooling fan built in.
- · Weight: ONLY 4 lbs 14 ozs.
- Dimensions: 5" x 4" x 11" (approx).
- Ripple voltage: less than 10 mV.
- Short circuit protected.
- · Carry handle for portability.

HRO Price \$169.95

# SS-505 50 amp

- 50 amps continuous current (55 peak).
- 50 amps available at all output voltages.
- Voltage adjustable: 5-15V.
- Binding posts on back, cigarette-lighter socket, spring loaded connectors on front.
- · Voltage fluctuation: less than 1.5%.
- Dual purpose meter amp and voltage.
- · Automatic cooling fan built in.
- · Weight: ONLY 8 lbs 4 ozs.
- Dimensions: 8.5" x 4.3" x 11" (approx).
- Ripple voltage: less than 5 mV.
- · Short circuit protected.
- · Carry handle for portability.
- Perfect for industrial, lab, or ham use.

HRO Price \$389.95

Brand	Model	Cont.Duty 13.8 VDC	Intermit Duty	Height in	Width in	Depth in	Weight lbs
Alinco	DM-330MVT	30 A	32 A	2.75	7	7	5
	DM-330FXT	25 A	30 A	2.71	7.48	7.12	5.5
Astron	RS-4A	3 A	4 A	3.75	6.5	9	5
	RS-7A	5 A	7 A	3.75	6.5	9	9
	RS-10A	7.5 A	10 A	4	7.5	10.75	11
	RS-12A	9 A	12 A	4.5	8	9	13
	RS-20A	16 A	20 A	5	9	10.5	18
	RS-35A	25 A	35 A	5	11	11	27
	RS-50A	37 A	50 A	6	13.75	11	46
	RS-70A	57 A	70 A	6	13.75	13.75	48
	RS-12M	9 A	12 A	4.5	8	9	13
	RS-20M	16 A	20 A	5	9	10.5	18
	RS-35M	25 A	35 A	5	11	11	27
	RS-50M	37 A	50 A	6	13.75	11	46
	RS-70M	57 A	70 A	6	13.75	12.12	48
	RM-50A	37 A	50 A	5.25	19	12.5	50
	RM-60A	50 A	55 A	7	19	12.5	63
	RM-35M	25 A	35 A	5.25	19	12.5	38
	RM-50M	37 A	50 A	5.25	19	12.5	50
	RM-60M	50 A	55 A	7	19	12.5	63
	VS-20M	16 A	20 A	5	9	10.5	20
	VS-35M	25 A	35 A	5	11	11	29
	VS-50M	37 A	50 A	6	13.75	11	46
	SL-11A	7 A	11 A	2.75	7.62	9.95	11
	SL-15R	12 A	15 A	2.75	7.62	9.95	14
	SS-10	7 A	10 A	1.125	6	9	3.2
	SS-12	10 A	12 A	1.375	6	9	3.4
	SS-18	15 A	18 A	1.375	6	9	3.6
	SS-25	20 A	25 A	2.875	7	9.375	4.2
	SS-30	25 A	30 A	3.75	7	9.625	5
Diamond	GZV4000	40 A	42 A	4.5	8.25	13	8
	GZV6000	60 A		4.5	8.25	13	8
Daiwa	SS-330W	30 A	33 A	4	5	11	4.8
	SS-505	50 A	55 A	4.3	8.5	11	8.25
Icom	PS-125	25 A	25 A	3.7	4.4	11.3	6.6
	PS-126	26 A	26 A	3.7	4.4	11.3	6.6
Kenwood	KPS-15	23 A	24 A	2.2	7	8.25	4
Power Werx	SS-30DV	25A	30 A	2.5	5	6.1	3
	SPS-30DM	25 A	28 A	2.5	5	6.1	3.7
Samlex	SEC1212	10 A	12A	2.2	7	8.25	3
	SEC1223	23 A	24 A	2.2	7	8.25	4
	SEC1223BBM	23 A	24 A	2.2	7	8.25	4
Yaesu	FP-1023	23 A	24 A	2.2	7	8.25	4
	FP-1030A	25 A	30 A	9.8	5.9	9.5	20.9

<sup>\*</sup> Internal Supply

(220 volt versions of some models available at additional cost by special order. Contact HRO for details.)

# **POWER SUPPLIES**

# samlexamerica

Samlex is THE power supply choice for radio manufacturers around the world. On the market for more than 20 years, these compact switching power supplies offer reliable power at a price consumers can afford.

# Switching Supplies For Base Stations



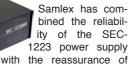
#### SEC-1223 & SEC-1212

The perfect lightweight companion for 100 Watt tranceivers. Input 100-130 VAC; Output: 13.8 VDC @ 23 Amps; UL approved. Also works on 200-240 VAC input with a simple jumper change. Safety features: Current limiting; Short circuit protection; Overvoltage protection; Quiet temperature controlled cooling fan. The SEC-1212 has the same form factor as the SEC-1223 with output of 13.8 VDC @ 12 amps.

- 3 year warranty "no questions asked."
- Dim 7"w x 2.1"h x 7.1"d; 4.5 lbs.

HRO Price SEC-1223 \$114.95 HRO Price SEC-1212 \$94.95

## SEC-1223BBM



the BBM-1225 battery backup module. The SEC-1223 23-amp unit automatically provides uninterrupted DC power from an external backup battery to your critical load in the event of an AC power outage. Once AC power is restored, the SEC-1223BBM will continue to seamlessly supply DC power to the load while providing a current-limited charge to the backup battery. Input: 100 – 130 VAC.Output: 13.8 VDC. HRO Price \$144.95



#### SEC-1235M

This unit includes built-in volt and amp meters. 100-130 VAC, 13.8 VDC.

- · Best power supply value available today.
- · Advanced switch-mode technology.
- · Reliable power with minimum weight and size.
- Circuit innovations minimize output voltage ripple and RFI.
- Input voltage can be set at 120 VAC or 240 VAC (internal jumper setting).
- Front panel ammeter and voltmeter.
- · Detachable power supply cord.
- UL listed to both USA & Canadian safety standards;
   FCC compliant HRO Price \$129.95

## **Battery Backup**



## BBM-1225 25 Amp BBM-12100 100 Amp

- Uninterrupted DC power in association with a power supply and battery.
- Instantaneous transfer of load between the power supply and the battery.
- Pre-set for 12 V power supply.
- Minor modifications for 24 V power supply.
- For use with any Samlex or other 12
   V or 24 V DC power supply

HRO Price BBM-1225 \$49.95 HRO Price BBM-12100 \$129.95

## **Radio Cabinets**



and power supply NOT included.)

## Base Station Radio Cabinets

Integrate your mobile radio with any Samlex desktop switching power supply to create an attractive and functional desktop base station unit. Cabinets are specifically designed for use with specific mobile radio models.

Samlex Part #	For use with radio model:
12250	Kenwood TM-281A
12200	Icom ID-880H-05; IC-2820H

Cabinets HRO Price \$40.95

## ALL SAMLEX POWER SUPPLIES CARRY A 3-YEAR WARRANTY

## **Power Supplies**



**MightyLite**™

MFJ-4125



Switching Power Supply. 25 amps surge, 22 amps continuous. No RF hash! Low ripple, highly regulated. Great review by QST magazine. Over-voltage and over-current protection circuits. Switchable AC input voltage, works from 85 to 135 VAC or 170 to 260 VAC. Replaceable fuse. Tiny 5.5 W x 2.5 H x 5.75 D inches. Weighs just 3.5 lbs.



## MFJ-4225MV

Similar to MFJ-4125, but adds large 3-inch amp,

volt meters and cigarette lighter plug. 5.25 W x 4.5 H x6 D inches. Weighs 3.7 pounds.

MFJ-4245MV



Similar to MFJ-4225MV but handles 45 amps surge and 40 amps continuous. 7.5 W x 4.75 H x 9 D inches. Weighs just 5.5 pounds.

## **Kilowatt Monitor**

#### Kill-A-Watt™

Connect equipment into the Kill-A-Watt™ to assess its efficiency. Alarge LCD display counts consumption by the kilowatt hour just like utility companies. You can figure out your electrical expenses by the hour, day, week month, even an entire year. Monitor the quality of your power by display-



ing voltage, line frequency, and power factor.

Specifications: Operating Voltage: 115VAC. Maximum Voltage: 125 VAC. Maximum Current: 15A. Maximum Power: 1875 VA. HRO Price \$24.95

# **POWER SUPPLIES**







# DM-330FXT Communications Grade Switching Power Supply

Compact, lightweight design features 9-15VDC variable output up to 25 amps with 30 amp peak. The noise Offset Circuit lets you move any switching noise to another frequency. Features large illuminated Volt/Amp meter, rear panel (30A peak) binding posts, front panel cigar outlet (10A), two pairs of snap-in terminals (5A max), and USB ports (2A max). Front panel adjustable. **HRO Price \$Call** 



#### **Switching Power Supply**

Super compact, lightweight power supply is great for portable operations. Provides 32 A peak, 30A continuous. Variable output 5-15 VDC. Preset voltage function. Patent pending noise offset circuit removes pulse noise. Short circuit protection. Convenient front panel connections. Cigarette plug socket. **HRO Price \$Call** 

# DIAMOND

Switching Mode DC Power Supply



#### **GZV4000**

The GZV4000 switching mode DC power supply has a 40 amp continuous rating at 100% duty cycle. The supply has variable voltage from 5-15 VDC using a voltage control knob with a center detent at 13.5 VDC. There is overload and short circuit protection with current feedback at approximately 42 amps and temperature protection with a variable speed fan. An AC line filter provides EMI protection. The meter selector allows monitoring of voltage and current. Power and overload indicators are included.

Connect your rig easily with front panel DC terminals and a cigarette lighter jack. The unit has in internal 8 ohm speaker. Operates on 120 VAC  $\pm$  20%, 50-60 Hz. Ripple and noise is less than 8mV rms. **HRO Price:** \$169.95

240 VAC models also available for GZV4000.

## **GZV6000**

60 amp version. 100V-240V HRO Price: \$369.95



## **Switching Supply**



## SS-30DV Switching Power Supply 25 Amp

This power supply is set up for 230 VAC input as shipped from the factory. For 115 VAC applications, set the recessed 115 / 230 input select switch located on the rear of the power supply into the proper position. Positions are identified on the switch. Use a small screwdriver to slide the switch into position. No adjustment is necessary for either 50 or 60 Hz input.

- Front connection: 2 sets of Powerpole® connectors.
- Rear connection: 1/4 inch binding posts that also accept banana plugs, 1/4 inch ring terminals or compression connections.
- · Illuminated power switch.

#### Electrical specifications:

- Input range: 100-120 VAC or 200-240 VAC, 50/60Hz (switchable).
- Output voltage: 14.1 VDC fixed.
- Output amperage: 25 continuous, 30 surge.
- Internal protection: thermal, over current.
- Internal input fuse: 6.3 amps at 115 VAC.
- Ripple peak-to-peak max. <100 mVpp.</li>
- Noise peak-to-peak max. <100 mVpp.</li>
- Operating temperature rating: 0 –
- Storage temperature: -20 85 °C.

#### Physical dimensions and materials:

- Weight: 3.0 lbs. (48 oz.).
- Overall dimensions: 6.1 x 5 x 2.5 in. (154 mm long, 127 mm wide, 63 mm tall).
- · Fan: quiet internal cooling fan.
- · Machined metal case front bezel.

#### HRO Price \$109.95

## **Variable Supply**



## SPS-30DM Variable Desk Top 30 Amp Power Supply

This dual metered digital (amps/volts) power supply features user variable output (5~16 VDC) by adjusting the front mounted knob, or fixed 14.1 VDC output. Rear power output via 1/4" binding posts. Supplies up to 25 amps continuous, 28 amps surge.

- Dual metered digital (amps/volts) power supply.
- User selectable variable output voltage from 5~16 VDC by adjusting the front mounted knob or fixed output at 14.1 VDC.
- Rear connection: 1/4 inch binding posts that also accept banana plugs or compression connections.

#### Electrical specifications:

- Input range: 100-120 VAC or 200-240 VAC, 50/60 Hz (user switchable).
- Output voltage: variable 5~16 VDC.
- Output amperage: 25 continuous, 28 surge.
- · Polarity ground: negative.
- Internal protection: thermal, over current
- Internal input fuse: 6.3 amps at 115 VAC.
- Ripple peak-to-peak max. <100 mVpp.</li>
- Noise peak-to-peak max. <100 mVpp.</li>
- Operating temperature rating: 0 ~50
- Storage temperature: -20 ~ 85 °C.
- Meter Tolerance: ±3%

Physical dimensions and materials:

- Weight: 3.7 lbs. (59 oz.).
- Overall dimensions: 6.1 x 5 x 2.5 in. (154 mm long, 127 mm wide, 63 mm tall).
- · Fan: quiet internal cooling fan.
- · Machined metal case front bezel.

HRO Price \$159.95

# POWER CABLE ACCESSORIES

# power were don

## Adapter Cables



#### CGPP-72

Cigarette Lighter Plug Fused (AGC) to Powerpole® (Length: 5 ft., Amps: 15 amps).

**HRO Price \$14.95** 

Fused (AGC) to OEM-T Male Connector (Length: 5 ft.,







#### **PPTM-72**

Powerpole® to OEM "T" Male Connector (Length: 5 ft.) **HRO Price \$14.95** 

#### SOC-PP

Cigarette Lighter Socket with internal ATC fuse and Powerpole® End (Length 1

ft., Amps: 15 amps). HRO Price \$14.95

#### PSC-10-14 and PSC-10-38



6 foot 10 gauge Power Supply Cable with 45 amp Powerpoles® on one end and 1/4 or 3/8 inch gold plated

ring terminals on the other. HRO Price \$13.95

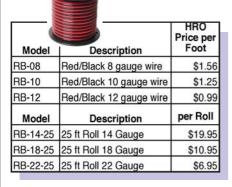
#### **PSC-08**

10 foot of 8 gauge Power Supply



inch gold plated ring terminals on the other. **HRO Price \$18.95** 

## **Red / Black Wire**



## **In-Line WattMeter**

#### WattMeter-PP

Measures up to 60 V and 130 A. Also:



Watts, amphours, Watthours, peak amps, minimum volts, peak Watts. backlit LCD display. HRO Price \$59.95

## Fused Adapter Cables

#### **PPH-12**

ATC Style 12 gauge fuse holders with 30 amp Powerpoles® mounted on each Includes (2) 15 amp ATC fuses

**HRO Price \$12.95** 

#### **PPH-10**

ATC Style 10 gauge fuse holders with 45 amp Powerpoles® mounted on each end. Includes (2) 40 amp ATC fuses. HRO Price \$14.95



ATC Style 8 gauge MAXI fuse holder with

Powerpoles® mounted on each end. Includes (2) 80 amp MAXI fuses. HRO Price \$24.95

75

amp

#### **RGH-12**

ATC Style 12 gauge fuse holders with 30 amp Powerpoles® mounted on one end and gold plated 1/4" or 3/8" ring terminals on the other. Includes (2) 15 amp ATC fuses. HRO Price \$12.95

ATC Style 10 gauge fuse holder with 45 amp Powerpoles® mounted on one end and gold plat-

ed 1/4" ring terminals on the other. Includes (2) 40 amp ATC fuses. HRO Price \$14.95

#### **RGH-08**



terminals on the other. Includes (2) 80 amp ATC fuses. HRO Price \$24.95

## Powerpole® Splitters

## Red-Dee-2 Connect

**PS-4** 

Red-Dee-2™ Connect Powerpole® splitter. **HRO Price \$17.95** 



**PS-4 Plus** 

Red-Dee-2™ Connect Powerpole® splitter. HRO Price \$17.95

Red-Dee-2™ Connect Powerpole® splitter. **HRO Price \$27.95** 



PS-75 / 45-4

Red-Dee-2™ Connect Powerpole® splitter. HRO Price \$38.95

Red-Dee-2™ Powerpole® splitter with Powerpole® connectors on both ends. HRO Price \$34.95

## **TRIcrimp Tool**

Exclusively designed to provide a positive crimp on the Anderson Powerpole® 15, 30 & 45 amp contacts in one tool. Crimper for Anderson Power Products. **HRO Price \$39.95** 

Tri-Dies: Expand the functionality of your TRIcrimp tool with these additional die sets. Easily crimp OEM T, HF / VHF connectors, SB50 / PP75 contacts, hex crimp for various coaxial cable connectors, non-insulated terminals, insulated terminals, end sleeves, HRO Price \$59.95

## Powerpole® Bags



		HRO Price
Model	Description	Per Bag
PP- 15-10	Powerpole® 15A 10 pack	\$9.95
PP- 15-25	Powerpole® 15A 25 pack	\$19.95
PP- 30-10	Powerpole® 30A 10 pack	\$9.95
PP- 30-25	Powerpole® 30A 25 pack	\$19.95
PP- 45-10	Powerpole® 45A 10 pack	\$14.95
PP- 45-25	Powerpole® 45A 25 pack	\$29.95

# MFJ

# **ANTENNA TUNERS**

## **DC Power Strips**



#### MFJ-1118

High current multiple DC outlet. Use for two HF and / or VHF transceivers and six or more accessories from your transceiver's main 12 VDC power supply.



#### MFJ-1116

Deluxe multiple DC power outlet. 8 outlets for powering accessories.



**MFJ-1112** is like the MFJ-1116 without on / off switch, voltmeter and fuse. 6 pair outlets.



#### MFJ-1117

For powering four HF / VHF radios (two at 35 amps each and two at 35 amps combined) simultaneously.

#### MFJ-1129

Get the best of both connectors. Has Anderson Powerpoles® and high-current binding posts. Outlets 1, 2, 4-8 are Powerpoles®, outlet 3 is a 35A high current binding post. Includes 7 pairs of Powerpole® 35A contacts, ten fuses.

#### MFJ-1128

12 outlets, factory installed fuses, handles 20 amps total.

#### MFJ-1126

8 outlets. (12) 35A contacts.

#### MFJ-1124

6 outlets. (8) 35A contacts.

HRO carries
many more MFJ
products. Please
call or check our
website
www.hamradio.com

### **HF Roller Inductor Tuners**



#### MFJ-989D

The world's most popular legal limit antenna tuner!

Easily handles 1500 Watts SSB / CW, 1.8 to 30 MHz including MARS / WARC bands. 500 pF air variable capacitors, AirCore™ roller inductor with fast-tune crank knob, TrueActive™ peak-reading cross-needle SWR / Wattmeter, high voltage current balun, more! 12-7/8 W x 6 H x 11-5/8 D inches.

#### MFJ-986

Similar to MFJ-989D, but "D" has 2-knob tuning (differential capacitor and AirCore™ roller inductor) to make tuning fool-proof and easier than ever.

MFJ-962D



Handles 1.5 KW PEP SSB amplifier input power (800 W output). Peak-reading cross-needle SWR / Wattmeter. AirCore™ roller inductor.



#### MFJ-969

Covers 6 thru 160 meters!

300 Watts PEP SSB. TrueActive™ peak-reading SWR / Wattmeter, antenna switch, built-in dummy load, 4:1 balun, Lexan® front panel. 3-1/2 H x10-1/2 W x 9-1/2 D inches.

#### **Automatic Antenna Tuners**

## MFJ-929



200 Watt automatic

HF antenna tuner in a compact size 6-1/2 W x 2-7/8 H x 8-3/8 D inches. Ultra-fast, 20,000 VirtualAntenna $^{\text{TM}}$  Memories, antenna switch, efficient L-network, matches 6-1600 Ohms, 1.8-30 MHz. Digital SWR / Wattmeter, radio interface.



#### MFJ-993B

300 Watt automatic HF antenna tuner is like the MFJ-929, but you can select 300 Watts (6-1600 Ohms matching range) or 150 Watts (6-3200 Ohms matching range). Also has 4:1 current balun, remote control port.

## MFJ-994B

600 Watt Intelli-Tuner™. Like MFJ-993B, but has 10,000 VirtualAntenna™ memories and handles 600 Watts CW / SSB, matches 12-800 Ohms. Does not have LCD display, antenna switch or 4:1 balun



#### MFJ-998

1500 Watts SSB / CW Intelli-Tuner™. Digital and analog SWR / Wattmeter, ultra-fast, automatic tuning, wide range (12-1600 Ohms from 1.8 to 30 MHz), radio interfaces, built-in antenna switch for two coax / long wire, automatic bypass to protect your amplifier, field upgradeable software.

#### **HF Switched Inductor Tuners**



## MFJ-949E

More hams use MFJ-949s than

any other antenna tuner! 300 Watts, 1.8 to 30 MHz, custom inductor switch, 1000 volt tuning caps, full size peak / average lighted cross-needle SWR / Wattmeter, 8 position antenna switch, dummy load, scratch proof Lexan® front panel. 3-1/2 H x 10-5/8 W x 7 D inches.

#### MFJ-948

Economy version of MFJ- 949E, less dummy load. Lexan® front.

#### MFJ-941E

Super value tuner handles 300 Watts PEP, covers 1.8-30 MHz, lighted cross-needle SWR / Wattmeter, 8-position antenna switch, 4:1 balun, 1000 volt capacitors. 10-1/2" W x 2-1/2" H x 7" D.

#### MFJ-901B

Wide range 200 Watt PEP versa tuner. Covers 1.8 to 30 MHz.



#### MFJ-945E

HF / 6 meter mobile tuner. Extends mobile antenna bandwidth. Tiny 8 x 2 x 6" fits easily in car.

#### MFJ-971

Portable / QRP tuner tunes coax, balanced line, random wire 1.8-



30 MHz. 30 / 300 or 6 Watt ranges. Matches MFJ QRP rigs.  $6 \times 6^{-1/2} \times 2^{-1/2}$  inches.



#### MFJ-902B

Tiny Travel Tuner,  $4-1/2 \times 2-1/4 \times 3$ ", full 150 W, 80-10 M, tuner bypass switch.

#### MFJ-904H

Similar but adds SWR / Wattmeter, 4:1 balun.  $7-1/4 \times 2-1/4 \times 2-3/4$  inches.





# **ANTENNA TUNERS**

## Designed by Hams for Hams. Made in the USA.



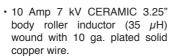
## AT-5K **Antenna Tuner**

The AT5K takes power handling to the next level over the AT4K, coming in with a rating of 3500 Watts

single tone continuous performance with low losses and wide Z range. Palstar's AT5K, like its AT4K little brother, has a T-matching network utilizing a 1:1 unbalanced-to-balanced transformer at the INPUT of the network.

been combined into a new 2kW tuner. The AT2K has all our features such

- · 3500 Watts single tone, high efficiency, low tuner losses and wide Z range.
- 160m to 15m with limited Z range on 10m.
- · Balanced output with high power 5 kW Teflon® wire balun at the input of tuner circuit.
- · Custom, large plate variable capacitors (600pF @ 6 kV).
- · Ferrite 1:1 input balun.



- · Six-position switchable antenna input switch with 7 kV, 10 Amp contacts.
- · Peak and peak hold dual crossneedle metering (1-2 sec hold) with backlighting.
- · Fan cooling for extended 100% duty cycle operation.

**Antenna Tuner** 

The AT1500DT and the AT1KP have



## AT4K **Antenna Tuner**

The AT4K has a power rating of 2500 Watts single tone con-

- 10 amp edge-wound silver plated ceramic body roller inductors crank handle driven.
- · Switchable antenna inputs.
- Ferrite 1:1 input balun.
- · Peak / peak hold dual crossneedle metering (1-2 sec hold) with backlight.
- Size: 15" x 7" x 16"deep.
- · Weight: 20 lbs.



· Unbalanced/balanced output

(switch activated on front

panel) with high power balun

at the input of tuner circuit.

• T match circuit: impedance

Custom large value (460pf)

variable capacitors at 6 kV.

matching range 8 ohms to 2000

## AT-500 **Antenna Tuner**

Covering 160 to 6 meters, the AT-500 features a differential tuning

capacitor with 2 stators and 1 rotor, a precision ceramic body roller inductor, and a 4:1 ferrite current balun for balanced line feeds.

- · Power rating: 600 Watts PEP SSB; 500 Watts CW.
- · Output to both balanced and unbalanced lines.
- Impedance matching range 20 ohms to 1500 ohms.
- · 6 position mode switch for multiple antennas.
- Active crossneedle peak / peak hold metering with back-
- · Meter power range 0-300 Watts / 0-1000 Watts.
- · Differential capacitor tuning with 2 stators and 1 rotor (360pF - 14pF - 360pF @ 2.5kV).

#### as: peak and peak-hold: a resonant free roller system to operate from 6m to 160m continuously; new LED lit meter system; and a new compact size.

- · Power rating 2000 Watts PEP. • Frequency tuning 160m to 6m.
- · Impedance matching range 20 ohms to 1200 ohms.
- · Easy and quick tuning with only two controls.
- · Palstar designed ceramic body roller inductor.
- 6 position mode switch for multiple
- · Meter power range 0-300 Watts / 0-3000 Watts.



- · Active peak and peak hold dual cross-needle metering (1-2 sec hold) with LED backlighting.
- · Differential capacitor tuning with 2 stators and 1 rotor (420 pF - 13pF - 420pF @ 5kV).
- · High power ferrite 1:1 or 4:1 current balun (optional) externally
- Size: 12 1/2" x 5 1/2" x 16".
- · Weight: 12 lbs.

Optional 1:1 or 4:1 Current Balun available.

## **ΔT-2K Antenna Tuner**

The smaller roller inductor allows the AT2K to tune 6 meters, while a

relay-switched toroid adds the extra inductance needed for 160 meter coverage. Newly designed capacitors feature lower minimum capacitance for improved high band performance, while maximum capacitance has been increased to 400 pF for better low band performance.

- · Power rating 2000 Watts PEP.
- Impedance range 20 to 1500 ohm 160m to 10m (assuming resistive
- · Ferrite 4:1 current balun.
- · Low minimum custom variable capacitors (15pF to 400pF at 4.5
- 18 μH 5 kV ceramic body roller inductor with turns counter.
- · Silver plated inductor wheel shaft and contact wheel.
- · 10 uH relay-switched add-on inductor for 160 meters, roller inductor with turns counter.
- · Active peak / peak hold crossneedle metering with backlight-
- 6 position ceramic wafer antenna selector switch.

## **Palstar Products**

Model	Description	Price
	Antenna Tuners	
HF-AUTOTUNE	1500 W Antenna Tuner	\$1,494.95
AT5K	3500 W Antenna Tuner	\$1,195.9
AT4K	2500 W Antenna Tuner	\$865.9
BT1500A	1500 W Balanced Antenna Tuner	\$729.9
AT2K	2000 W Antenna Tuner	\$544.9
AT2KD	1999 W Differential Antenna Tuner	\$549.9
AT500	600 W Antenna Tuner	\$479.9
	Wattmeters	
PM2000A	2000 W Wattmeter 1.8Mhz to 60Mhz	\$184.9
PM2000AM	200 W Wattmeter mobile 1.8Mhz to 60Mhz	\$179.9
	Antenna Analyzer	
ZM30	Antenna Analyzer SWR 1Mhz - 30 Mhz	\$379.9
	Shortwave Accessories	
R30A	Shortwave Receiver AM/SSB Collins Filters	\$879.9
SP30B	Speaker 12 Watts (for R30C/CC)	\$99.9
	Dummy Loads	
DL1500	Dummy Load 1500 W - 450 Mhz	\$189.9
DL2K	Dummy Load 2000 W - 30 Mhz meter/fan	\$379.9
	Baluns	
B4KC 4:1	Balun 4/1 4000W-Voltage-Hi-Z	\$89.9
B4KC 1:1	Balun 1/1 4000W-Current-Low-Z	\$89.9



# **ANTENNA TUNERS**

## **Remote Tuners**

## A Technological Breakthrough in Remote



## RT-600 / RC-600 Automatic Antenna Tuner / Remote Control

The RT-600 is a 600 watt PEP coax in / coax out remote tuner designed to be placed near the feedpoint of the antenna. If you are worried about power or signal loss due to SWR in your feedline, the RT-600 is the answer. Place the RT-600 near the feedpoint and it will virtually eliminate all feedline loss due to SWR. DC powered over the coax by the RC-600 control unit (included).

- 2000 memories for instantaneous band changing.
- 1.8 to 54.0 MHz coverage. Built-in frequency sensor.
- For dipoles, verticals, Vs, beams or any coax-fed antenna. Optional external balun allows tuning of random length, long wire or ladder line fed antennas.

#### HRO Price \$449.95



## RT-100 / RC-100 Automatic Antenna Tuner / Remote Control

Place this coax-in / coax-out tuner near the feedpoint of the antenna and it will virtually eliminate all feed line loss due to SWR. The RT-100 is DC powered over the coax, so no extra cables are needed. Add your own DC injection circuit or use the LDG RC-100 to power



and control the tuner from your shack. Th RC-100 will provide DC power over the coax as well as control for auto mode, lock, and tune.

HRO Price \$249.95

## **Tune Two Antennas**



The LDG AT-1000 Proll features an auto mode that automatically starts a tuning cycle any time the SWR exceeds a limit you set. Tune two antennas and switch between them. 2000 memories store tuning parameters for each antenna. The unit operates at any power level between 5 and 1000 Watts peak RF input. A large, easy to read LED bargraph has two selectable ranges. It will tune from 1.8 to 54 MHz matching a wide range of antennas.

HRO Price \$519.95 M1000 meter Optional HRO Price \$129.95

AT-100 Proll



This automatic desktop tuner covers 1.8 – 54 MHz. A two-position antenna switch allows you to switch instantly between two antennas. The AT-100 Proll requires just 1 Watt for operation, but will handle up to 125 Watts, making it suitable for everything from QRP to a typical 100 Watt transceiver. It includes more than 2,000 memories for each antenna, automatically storing tuning configurations for each frequency and band as you use them. Includes antenna and bypass indicators on front panel.

HRO Price AT-100Proll \$209.95



The AT-600ProII will handle up to 600 Watts SSB and CW, 300 on RTTY (1.8 – 30 MHz), 250 Watts on 54 MHz.

- · Processor-controlled switched-L tuner.
- Matches coax-fed antennas. Matches 10:1 SWR down to 1.5:1.
- Use with longwires, random wires and antennas fed with ladder line by adding an optional balun.
- · Two antenna ports.
- · Requires 11-16VDC at 750mA.

HRO Price AT-600ProII \$349.95 M-600 Meter \$129.95

## **Low-Cost Tuner**



#### **Definitive low cost auto tuner!**

Designed to provide 125 Watt power handling in SSB, CW and digital modes, the Z100 Plus features 2000 memories that store both frequency and tuning parameters. Operating frequencies are stored with tuning parameters to make memory tunes in a fast 0.1 seconds. Full tunes take an average of only 6 seconds. The tuner will run on any voltage source from 7 – 18 volts. Six AA batteries (not supplied) will run it for a year of normal use.

HRO Price \$149.95

## **Portable Tuner**



#### The Return of a Legend

Here is everything you need in a small, portable tuner designed for battery operation. Only 5" x 7.7" x 1.5" and weighing 1.5 pounds, it handles 0.1 to 125 Watts, making it ideal for both QRP and standard 100-Watt transceivers from 160 – 6 meters. With 8,000 memories, the Z-11 ProII uses a state-of-theart processor-controlled switched-L tuning network. It matches dipoles, verticals, inverted-Vs or virtually any coax-fed antenna. With an optional LDG balun, it will also match longwires or antennas fed with ladder-line. **HRO Price \$169.95** 

## **For High Power**



#### AT-200 Proll

# The first auto tuner specially designed for high-powered transceivers

The AT-200 features LDG's "3-D Memory Array" allowing up to eight antenna settings to be stored for each frequency. Handles up to 250 Watts SSB or CW on 1.8 – 30 MHz, and 100 Watts on 54 MHz (including 6 Meters). Rugged and easy-to-read LED bar graphs show power and SWR. A function key on the front panel allows you to access data such as mode and status. An LED indicates bypass mode and another shows which antenna is selected.

HRO Price \$239.95

## Yaesu Matching





YT-1200

#### **Desktop Tuner for Yaesu Tranceivers**

Seamless integration with FT-450 series, FT-950, FTdx1200 & 3000 and non-D FT-2000.The YT-1200 includes a CAT/power cable . Just press the tune button on the tuner and everything else happens automatically! The mode is set to carrier and the RF power is reduced, a tune cycle runs and the radio is returned to the original settings. **HRO Price \$259.95** 

## **Rig Matching**



#### **For Alinco Transceivers**

The AL-100 allows you to interface to any Alinco HF radio including the new DX-SR8T, DX-77, and DX-70. A front panel LED indicates tuning status. The AL-100 has 2000 memories and is powered and controlled over the supplied interface cable. **HRO Price \$149.95** 



#### **Especially for Icom Radios**

The ideal tuner for IC-7000 and other Icom radios covers all frequencies from 1.8 – 54 MHz and will automatically match your antenna in a flash. Tunes 1 to 125 Watts SSB, CW and digital modes. Has a front panel push button for manual or automatic tune plus a status LED. Tune with the IT-100 or use your radio. Includes more than 2,000 memories. Uses latching relays. Tuning range is 4 – 800 ohms, powered by your radio. Includes Icom interface cable. **HRO Price 179.95** 



# For Kenwood AT-300 Compatible Transceivers

The KT-100 allows uses the TUNE button on any AT-300 compatible Kenwood transceiver. Front panel LEDs indicate tuning status and show a match in seconds. The KT-100 has 2000 memories for band and frequencies. Using the supplied cable, plug the unit into your transceiver. **HRO Price \$199.95** 

#### Z-817H Automatic Tuner for the Yaesu FT-817

Using the Tokyo Hy Power HL-45B, the Z-817H is



an autotuner for QRP radios including the Yaesu FT-817(ND). The Z-817H interfaces to the CAT port (ACC) on the back of the FT-817 radio with the provided cable. It switchs to PKT mode, transmits a carrier, tunes the tuner, then restores the radio to the previous mode! It connects to the THP HL-45B for automatic band selection on the amp. **HRO Price \$159.95** 



Z-817 Automatic Tuner for the Yaesu FT-817

The Z-817 automatic

tuner, operating on 160 – 6 meters, attaches to the CAT port with the provided cable. Press the One-Touch-Tune button on the tuner and the Z-817 sets mode and power on the radio, tunes, then restores mode and power. Tuning time is 0.2 seconds for recalling one of its 2000 memories, and average time for a full is 2.5 seconds. The Z-817 also works with any QRP radio with output of up to 20 Watts. Press the tune button on the tuner while transmitting a carrier and it finds a match. Includes one foot CAT interface cable and coax jumper. Has CAT-thru port to allow computer control of radio. Tuning range of SWR loads from 6 to 450 ohms. It is powered by four AA batteries (not included). Size is 4.5 x 4.5 x 1.5".

HRO Price \$119.95

YT-100 Auto Tuner for Yaesu Transceivers



The YT-100 includes a cable that connects with your FT-857, FT-897 or FT-100 (including all D models) to make it an integrated tuner powered by the interface. Press the tune button on the tuner, and everything else happens automatically: mode and power are set, a tune cycle runs, and the radio is returned to its original settings. Handles RF power from 1 to 100 Watts. CAT thru port for radio computer control. 2000 memories. 1.8 – 54 MHz coverage. **HRO Price \$199.95** 



AT-897 Plus Auto Tuner for the Yaesu FT-897

(radio not included)

The microproces-

sor controlled AT-897 Plus mounts on the side of your FT-897 just like the original equipment. A front panel button initiates the tuning sequence while lowering the RF power to 25 Watts and will bypass the tuner if pressed momentarily. The AT-897 takes power directly from the CAT port of the FT-897 and provides a second CAT port on the back of the tuner. Tunes any coax fed antenna. Use a balun for long wires. **HRO Price \$199.95** 

## **SWR for Yaesu**



FTL Meter for the Yaesu FT-897 / 857

The large, easy-to-read FTL-Meter is a plug-and-play solution to all your metering needs for the FT-857(D) and FT-897(D) transceivers. Attach to the meter jack at the front of the rig. LDG's new version presents a lush, highly readable 4.5 inch meter face with calibrated scales for signal strength and discriminator reading on receive, power output, SWR, modulation, ALC action and supply voltage on transmit. Functions are selectable from the radio's menu."4.5" meters also available for IC-7600 and IC-7700. HRO Price \$89.95

## FT Meter - Blue for the Yaesu FT-897 / 857



LDG's Blue FT-Meter has a highly readable 2.5" meter face with calibrated scales for signal strength and discriminator reading on receive, power output, SWR, modulation, ALC action and supply voltage on transmit. Each function is selectable from the radio's menu. Easily visible from anywhere on your desk or dash, the FT-Meter is illuminated by any external 12 VDC source. It comes fully assembled and ready to go; just plug it into the radio. **HRO Price \$59.95** 

HRO's New Plano TX Super Showroom Is Now Open

# **ANTENNA TUNERS**

# **COAX SWITCHES**



Smartuners<sup>™</sup> are the most versatile and reliable antenna couplers available. Working with power levels from 1.5 to 500 Watts and with frequency ranges spanning the HF bands from a single antenna, they provide all-purpose tuning ideal for base, mobile, or portable operation. Just provide 12 V, connect to transceiver, antenna, and ground, and get on the air with minimum SWR. Visit sgcworld.com for a detailed review of the Smartuner family, and find the right one for your needs. Stop tuning, start talking.

## The Budget Smartuner™ SG-239 - \$185.95



Get quality performance from a low cost package. The SG-239 will operate from 1.8 to 30 MHz with 1.5 to 200 W. Like all Smartuners, it gives you the most flexibility because it will work with any antenna and any transceiver. It also has push buttons for a manual tune option. It weighs only 2 pounds, so you can use it for base or portable.

## **The General Purpose** Smartuner™

SG-237 \$299.95

The SG-237 is the most popular Smartuner. Its rugged construction and small size allow for maximum flexibility. It has a 100 W power rating and expanded coverage to 60 MHz, matching it perfectly with the most popular HF + 6m transceivers. It will work with any balanced or unbalanced antenna including whips, backstays, dipoles, loops and long wires.

# **HF Antenna Coupler**

SG-235 \$1099.95

This fully automatic coupler for 500 Watts will tune an antenna at least 23 feet long for the HF bands. The SG-235 automatically evaluates and switches 64 input and 32

output capacitor combinations plus 256 inductance combinations in a pi network design. The tuner remembers the chosen frequency and tuning values and automatically reselects those values when transmitting on that frequency.

## SGC Smartuners

Specifications	SG-230	SG-235	SG237	SG-239	MAC-200*
PEP Input (W)	3-200	3-500	3-100	1.5-200	1.5-200
CW Max Input (W)	80	200	40	80	80
Frequency (MHz)	1.8-30	1.8-30	1.8-60	1.8-30	1.8-60
Input Current (A)	0.9	1.4	0.3	0.23	0.23
Antenna Length (<3.3MHz)	8 ft	50 ft	8 ft	40 ft	40 ft
Antenna Length (>3.3MHz)	23 ft	300 ft	28 ft	100 ft	100 ft
Dimensions (in)	16x12x3	16x12x3	7x6x1.5	7.5x6x2	8.5x6.5x3
Weight (lbs)	8	8	2	2	5
Waterproof	yes	yes	yes	no	no
HRO Price	\$499.95	\$1,099.95	\$299.95	\$185.95	\$254.95

\* Desktop Unit controls and switches up to 5 units.



The SG-230 Smartuner was the first product in the HF market to offer fast, flexible tuning without any user interface. It is built in a rugged, factory sealed ABS enclosure. With this tuner and any single antenna, you will have continuous coverage from 1.8 to 30 MHz and it can be used with any transceiver you'll ever own. The SG-230 can be used in base station, mobile, marine and aviation applications, and has been the "Gold Standard" of automatic antenna tuning for more than a decade.



## Master **Antenna Controller**

**MAC-200** 

Select the right antenna, for the right band, at the right time with the MAC-200. You can select among up to five antennas and tune automatically to minimum SWR. Monitor your power and SWR with meters on the front panel. The MAC-200 automatically selects the correct antenna for your operating frequency, quickly and accurately. It stores the correct settings in memory and will recall them in less than ten milliseconds. HRO Price \$254.95

## **HF Antenna Switches**



2 Position Coax Switch **CS-201** 

DAIWA

Daiwa has two heavyduty coaxial switches. Both are usable to 500 MHz and the unused posi-

tions are grounded. Switches are available at slightly higher prices with type "N" connectors. HRO Price \$32.95



## 2-Position Coax Switch CX-210A

Diamond's heavy-duty wideband coax switch,

the CX-210A, is a high quality 2 position coax switch with SO-239 connections. Like most Diamond products, this switch is very well built and durable. Two screws on the back allow you to mount the switch to a flat surface. HRO Discount Price: \$49.95



MFJ-1702C position antenna

coax switch. New center ground, lightning arrestor. 2.5 kW PEP, 1 kW CW. Loss

below .2 dB. 50 dB isolation @ 450 MHz. 50 ohms. 3 x 2 x 3 inches.



positions. 6.25 x 4.25 x 1.25 inches. 50 ohm load.

SWR 1.1: 1 to 30 MHz; 1.5:1, 30-650 MHz. SO-239. 2.25 x 2.25 x 7 inches.

#### MFJ-1701

6 position antenna switch, 50-75 ohms. Handles 2 kW PEP or 1 kW CW. 1.8-30 MHz. SO-239 connectors. Unused positions automatically grounded.

#### MFJ-1700C

6 position antenna and transceiver switch switches between 1-6 antennas and 1-6 rigs. Handles 2 kW PEP or 1 kW CW, 1.8 to 30 MHz.



80

# LIGHTNING PROTECTION

## **Lightning Protection**

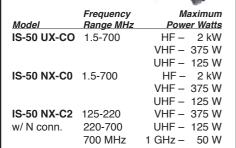
# PolyPhaser<sup>®</sup>

#### **Coaxial Impulse Suppressors**

Hermetically-sealed voltage sensitive gas

tubes and other components assure that surge voltages and currents will not reach your equipment.

## Flange Mounts HRO Price \$61.95



## **Bulkhead Mounts**

HRO Price \$64.95 Type-N HRO Price \$69.95

**IS-B50 LU-CO-ME** 1.5-400

	Frequency	Maximum
Model	Range MHz	Power Watts

HF- 2kW

UHF - 200 W

		VHF -	375 W
		UHF -	125 W
IS-B50 HN-CO	1.5-700	HF –	3kW
w/N connector		VHF -	500 W

#### **Rotator Control Protector**

#### Model IS-RCT

Provides protection for rotator controllers, motors, control box and other nearby equipment. **HRO Price Call** 

## Power Line Extension Protector

Two-outlet extension cords with master on/off switch and circuit breaker.

Model	Lengti	h HRO	Price
IS-PLDO-120-15A	<b>A</b> 15'	120 V@15 A	Call
IS-PI DO-120-204	A 6'	120 V@20 A	Call

# **Grounding Panel**Model CU-SPGP

A.062" thick copper plate mounted on a painted 1/2" plywood backing. Mounting protectors and a single ground point established for station equipment. Comes with concrete anchors, all mounting screws, 10' of 1.5" copper grounding strap, 2 brass sandwich plates, and joint compound. 18" x 12". **HRO Price \$CALL** 

# ALPHA DELTA

## **Surge Protectors**

## **Transi-Traps**

The **ATT3G50** coaxial surge protector was designed for the cellular, microwave point-to-point, and the broadband wireless industry. These products feature very low loss performance through 3 GHz. Typical loss is 0.1 dB at 1 GHz through 0.5 dB at 3 GHz. This series represents the lowest loss broadband design in the industry. Choose type "N" or "UHF" connector.



The Defense Logistic Agency (DLA) has assigned National Stock Number (NSN) 01 5470278 to the Model TT3G50 Coax Surge Protector and NSN 5325 01 5466841 to the 3G50 ARC-PLUG® Cartridge for use in all US Military and NATO applications, worldwide.

Model	Description	Price
ATT3G 50N	200 W - 3.0 GHz, Type N	\$59.95
ATT3G 50NHP	2 kW - 3.0 GHz, Type N	\$59.95
ATT3G 50U	200 W - 500 MHz, UHF	\$49.95
ATT3G 50UHP	2 kW - 500 MHz, UHF	\$49.95

**HRO** 

## **Lightning Protected Coax Switches**



Delta-4B

#### **4 Position Switch**

This lightning protected 4 position RF coax switch uses the Alpha Delta ARC-PLUG® cartridge to protect your equipment from electrical surges. The exclusive center "off" (ground) position internally disconnects and grounds all antenna circuits. It has cast housing with constant impedance micro-strip cavity construction. Features a positive detent roller bearing switch drive. Handles full legal power. Delta-4/N for type "N" connectors. The Delta-4 handles frequencies through 500 MHz and the Delta-4/N through 1.3 GHz. HRO Price \$89.95; Type N \$99.95.



Delta-2B

#### 2 Position Switch

This 2 position coax switch is precision lightning surge protected. Has the same constant impedance cavity construction with "center-off" ground as the Delta-4 and a built-in replaceable ARC-PLUG® cartridge. Order UHF or type "N" connectors for low-loss performance through 1.3 GHz. HRO Price \$59.95; Type N \$74.95.

## Antenna Selector Console Desktop Coax Switch

This series retains all the features and specifications of the precision **DELTA-4B** series, including ARC-PLUG® module surge protection, in a desk top console that will sit right next to the equipment on your desk without having to be secured or bolted down. The console features

a powder-coated steel housing and

a solid brass ground buss, with #10 wire attachment hardware across the rear of the housing providing a common ground point for all station equipment and accessories.

**Model ASC-4B** Antenna Selector Console Switch (4 position, UHF Connectors thru 500 MHz). **HRO Price \$149.95** 

Model ASC-4B / N Antenna Selector Console Switch (4 position, N Connectors thru 1.3 GHz). HRO Price \$159.95

## **Ground Clamp**



### **Model UCGC**

The UCGC clamp mounts directly on a standard 5/8" copper ground rod. You can attach up to 4 Model ATT 3G50 series coax surge protectors. The ground clamp is made from solid copper and has stain-

less steel mounting hardware with 6 bolts, washers, and nuts. It includes an adjustable copper ground wire clamp for your station single point ground wire of up to 4 gauge in size. **HRO Price \$49.95** 

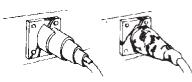
# **CABLE ASSEMBLIES / CONNECTORS**

## **Cable Assemblies**

# CABLE X-PERTS Ready-Made Coax Cable Assemblies

Model	Connector Both Ends	Burial	UV Resis- tant	Shields	Attenuation dB @ 100 Feet	Best Frequen- cies
CXP1318FC	PL259	Yes	Yes	2 (100% bonded foil + 95% TC Braid V/F 84%	50 MHz 1.1 150MHz 1.9 450MHz 3.3	50-450 MHz
CXP008C	PL259	No	Yes	1 (95% BC Braid) V/F 78%	10 MHz 0.51 30MHz 0.9 50MHz 1.2	1-50 MHz
CXP1318FN	"N"	Yes	Yes	2 (100% bonded foil + 95% TC Braid V/F 84%	150MHz 1.9 450MHz 3.3	150 MHz and Higher
CXP08XC	PL259	No	Yes	1 (95% BC Braid) V/F 78%	10 MHz 0.98 30MHz 2.0	1 - 30 MHz
CXP213C	PL259	Yes	Yes	1 (97% BC Braid) V/F 66%	10 MHz 0.62 30MHz 1.2	1 - 30 MHz (High Power)

## Coax-Seal



Coax-Seal will seal all types of coax fittings, baluns, antenna parts and connectors of any shape. Adheres to most surfaces. Wrap Coax-Seal around the object you want to protect and then mold it into shape. Keeps moisture out of the coax fitting on antenna feed lines. Need to make a change? Just remove it and start over. HRO Price: \$3.99 / roll

## CoaxWrap



CoaxWrap will provde your coax connections with outstanding protec-

tion from the weather. Just wrap the connection with the convenient roll. When you need access to the connection, the wrap removes easily. Available in red, white, blue, clear, and black.

Price per roll \$5.99.

## Connectors

Model	Description	HRO Price
BNC-44	BNC to UHF Adapter	\$5.99
N-31	N to UHF Adapter	\$9.99
PL-259ST	PL-259	\$2.69
N-TGS	Type N Male	\$6.99
UHF-08	4 hole SO-239 Chassis Connector	\$4.99
UHF-10	Double Male UHF	\$5.99
UHF-11	UHF Barrel	\$4.99
UG-363-4	Long UHF-UHF Barrel	\$10.99
UHF-15	RT. Angle Teflon, Gold Pin	\$8.99
UHF-13	UHF "T"	\$5.99
UHF-19	BNC to UHF Adapter	\$6.99
UHF-18	UHF to N Adpter	\$8.99

Free UPS Shipping on Orders Over \$100 from the Store **Nearest You** 

RG213/U w/PL259				
Part Number	Length (feet)	HRO Price		
CXP213C100	100	\$124.95		
CXP213C50	50	\$68.95		
CXP213C6	6	\$23.95		
CXP213C3	3	\$22.95		
RG8/U Foar	n w/PL259	422.00		
CXP008C100	100	\$119.95		
CXP008C50	50	\$62.95		
CXP008C25	25	\$39.95		
CXP008C12	12	\$32.95		
CXP008C6	6	\$29.95		
CXP008C3	3	\$26.95		
RG8X-Mini	w/PL259			
CXP08XC100	100	\$54.95		
CXP08XC75	75	\$49.95		
CXP08XC50	50	\$38.95		
CXP08XC25	25	\$31.95		
CXP08XC18	18	\$25.95		
CXP08XC6	6	\$23.95		
CXP08XC3	3	\$19.95		
9913-type Flexib	le w/N-Conne	ctor		
CXP1318FN150	150	\$179.95		
CXP1318FN100	100	\$139.95		
CXP1318FN50	50	\$84.95		
CXP1318FN25	25	\$51.95		
CXP1318FN6	6	\$29.95		
CXP1318FN3	3	\$28.95		
9913-type Flexib	le w/UHF Con			
CXP1318FC100	100	\$129.95		
CXP1318FC50	50	\$65.95		
CXP1318FC6	6	\$23.95		
CXP1318FC3	3	\$21.95		
<b>Tinned Copper</b>				
235	1" wide	\$1.84/ft		
2332	1/2" wide	\$0.79/ft		
235RT-5	1" 5 ft long*	\$19.95		
235RT-10	1" 10ft long*	\$25.95		
2332RT-5	1/2" 5ft long	\$12.95		
2332RT-10	1/2" 10ft long*	\$15.95		

<sup>\*</sup> w/Ring Terminals

## **Cable Ties**



BongoTies are handy elastic ties for cables and other unruly items. Perfect for audio, music, computer, office and home, sports, workshop and your Ham Shack. They are reusable, easy to apply and remove. The ties are made of high quality natural rubber and wood. (Not for outdoor use.)

HRO Price \$5.49 for a bag of 10



82

# COAX / ROTATOR CABLE / ROPE

We have RF cable available from

**ABR** Industries



BELDEN

**CABLE X-PERTS** 

**DAVIS RF** 

**JSC** 

## TIMES MICROWAVE

#### Coax

Purchase coax in any length up to 500 feet.

#### RG8/U

Standard RG8 /U, #13 stranded copper center conductor, cellular polyethylene insulation, 97% bare copper shield, PVC jacket, 50 ohm impedance, 78% velocity factor and 1.8 dB loss per 100' at 100 MHz. The most popular cable for HF/VHF/UHF. Use when long cable runs are not required.

#### **RG213/U**

RG-213/U coax, #13 stranded copper center conductor, solid polyethylene insulation, 97% bare copper shield, non-contaminating PVC jacket, 50 ohm impedance, 66% velocity factor and 2.2 dB loss per 100' at 100 MHz. This RG-8 type cable is best for HF. It may be buried.

#### 9913F-7

9913F-7 is RG8/U-type coax, #9.5 stranded copper conductor, foam polyethylene insulation, 100% foil plus 88% braid shield, PVC jacket, 50 ohm impedance, 84% velocity factor and 1.4 dB loss per 100' at 100 MHz. The best cable for VHF and UHF applications.

#### RG8X

RG8X is small diameter coax, #16 stranded copper center conductor, cellular polyethylene insulation, 95% bare copper shield, PVC jacket, 50 ohm impedance, 78% velocity factor and 3.7 dB loss per 100' at 100 MHz. Good for short VHF runs and most HF uses.

## **Rotator Cable**

8 wire, standard duty - 8 wire cable using six #22 and two #18 tinned copper conductors. PVC insulation.

**8 wire, heavy duty** - 8 wire cable using 6 - #18 and 2 - #16 tinned copper conductors. PVC insulation; chrome PVC jacket.

#### When Ordering Cable

Please order in multiples of 50 feet. Continuous length spools up to 500 feet are available. Call for quotes.

# **ABR** Industries

Complete Product Details on Page 66

ABR Industries manufacturers coax with a non-contaminating, ultra-violet resistant, and direct burial jacket.

Uses: 218XATC - lightweight for mobile, dipole antennas, jumpers between equipment in tight places.

**2213A** - UV resistant, direct bury, solid polyethylene dielectric, high power, bands below 30MHz with amplifiers.

**25400** - UV resistant, direct bury, for frequencies above 144MHz.

RG213/U w/Silver-Teflon/PL259				
Part Number	Length (feet)	HRO Price		
2213A-PL-3	3	\$21.95		
2213A-PL-25	25	\$44.95		
2213A-PL-50	50	\$69.95		
2213A-PL-100	100	\$124.95		
RG8/U Direct Bu	iry w/Silver-Te	flon/PL259		
25400F-PL-1.5	1.5	\$18.95		
25400F-PL-3	3	\$21.95		
25400F-PL-12	12	\$27.95		
25400F-PL-50	50	\$69.95		
25400F-PL-100	100	\$119.95		

RG8X-Direct Bur	ry w/Silver-Te	flon/PL259
218XATC-PL-1.5	1.5	\$16.95
218XATC-PL-3	3	\$18.95
218XATC-PL-6	6	\$19.95
218XATC-PL-9	9	\$24.95
218XATC-PL-18	18	\$26.95
218XATC-PL-30	30	\$32.95
218XATC-PL-40	40	\$35.95
218XATC-PL-50	50	\$37.95
218XATC-PL-100	100	\$54.95

## **Coax & Connectors**





Andrew coax and all the matching connectors you will need are available as a special order drop shipment.

Contact your nearest HRO store for complete details.

		Diameter	\$/100
Model #	Cable Type	Inches	feet*
LDF2-50	Foam Dielectric	3/8 inch	CALL
LDF4-50A	Foam Dielectric	1/2 inch	CALL
LDF5-50A	Foam Dielectric	7/8 inch	CALL
FSJ4-50B	Superflex	1/2 inch	CALL
		*Plus Shipping	

## Cable

# **TIMES**

# Call for Low Discount Prices on Times Cable

### LMR-200 - RG58 type

This is a standard RG58 'type' outdoor cable that is ideal for jumper assemblies, short antenna feeder runs, or any application requiring an easily routed, low loss RF cable. It has a solid BC inner conductor, foam polyethylene dielectric, aluminum tape outer conductor, a tinned copper overall braid and black polyethylene jacket. The velocity factor is 83%. It will withstand 1000VDC, a peak power of 2.5 kW, and shielding effectiveness is >90 dB.

#### LMR-240 - RG8X type

This RG8X 'type' outdoor cable has a solid BC inner conductor, foam polyethylene dielectric, aluminum tape outer conductor, a tinned copper overall braid and black polyethylene jacket. The velocity factor is 84%. It will withstand 1500 VDC, a peak power of 5.6 kW, and shielding effectiveness is >90 dB.

#### LMR-400 - RG8 / RG213 type

This is a standard RG8 / RG213 'type' outdoor cable that has a solid BCCA inner conductor, foam polyethylene dielectric, aluminum tape outer conductor, a tinned copper overall braid and black polyethylene jacket. The velocity factor is 85%. It will withstand 2500 VDC, a peak power of 16 kW, and shielding effectiveness is >90 dB.

#### LMR-400-UltraFlex

Similar specs as LMR-400 with TPE jacket.

## **Antenna Rope**

# Synthetic Textiles

## Black Dacron® Polyester

This antenna rope is constructed of strong, double braid Dacron® polyester. It is black for UV protection and has excellent resistance to mildew and abrasion. The rope ties and cuts easily, sealing effectively with a hot knife. No expensive hardware is required. Sizes and prices shown in the chart.

Size	Model	Strength	HRO Price*
3/32"	ST-3/32-100	260+ lbs	\$9.95
3/16"	ST-3/16-100	770+ lbs	\$16.95
5/16"	ST-5/16-100	1790+ lbs	\$24.95

<sup>\*</sup> Price per 100 feet



# **BALUNS**

## **Dummy Loads**



#### MFJ-250

1 kW Dummy Load, 50-Ohm. Oil filled. low SWR to 400 MHz Rated 1 kW CW or 2 kW PEP for 10 minutes. One half rating for 20 minutes. 200 Watts CW or 400 Watts

PEP continuous. Includes industrial transformer grade oil (no PCB).

## MFJ-264

HF/VHF Dry Dummy Load covers up to 650 MHz, usable to 750 MHz. Rated 1.5 kW for ten seconds. 100 Watts continuous. Perforated metal cabinet. SO-239.

### MFJ-260C

HF/VHF Drv Load is similar to MFJ-264, but handles 300 Watts for 30 seconds. Has derating curve. SO-239.



# Palstar



#### DL2K

The fan-cooled DL2K is capable of handling 2000 Watts for 1.5 minutes - long enough to tune your amp.

- · Frequency range DC to 30 MHz.
- · Internal Wattmeter and analog metering.
- · SO239 coax connector.
- Size: 6" x 5" x 12.5" deep
- · Weight 5 lbs.

## **DL1500**



The DL1500 is capable of handling 100 Watts "barefoot" power levels for 10 minutes, and 1500 Watts for up to 10 seconds. Air cooled. HRO Price \$189.95

#### **DL150M**

The DL150M handles up to 1000 watts for up to 1 minute, 600 watts for 5 minutes, and 300 watts 100% duty cycle. It has thermostaticallycontrolled dual fan cooling, so the fans only run when needed. HRO Price \$499.95

#### **Baluns**

# **Palstar**

#### B4000 Balun

The B4000 is a 4:1 voltage balun for use with Hi-Z antenna applications and center-fed wire antennas with open wire and twin lead transmission lines. It features a

die-cast aluminum case for all weather indoor/outdoor usage. Inside the alunimum case are steatite insulators with a large 3.25" ferrite core with Teflon® sleeved 12 ga. wire and rated up to 4kW plus.



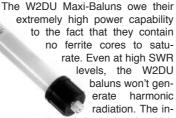
## Unadilla

## W2AU

The Unadilla W2AU 1:1 balun is designed to handle full 2000 Watts power. It matches 50-75 ohms coax to 50-75 ohms balanced. It has 1 to 1 impedance ratio and covers 1.8 to 40 MHz. Beam versions are available with pigtails to connect to driven elements.

	HKO Prices
W2AU 1/1	\$29.95
W2AU 4/1	\$29.95
W2AU 1/1 - Beam Version	\$30.95
W2AU 4/1 - Beam Version	\$30.95

## W2DU HF



ternal feed line passes through ferrite beads which prevent RF current from flowing on the coax shield. Also available for VHF frequencies. HRO Price \$31.95





200 Watts 1.8 to 30MHz

**HRO Prices** RBA-4:1 Remote 4:1 Balun \$29.95 **RBA-1:1** Remote 1:1 Balun \$29.95 **RU-4:1** Remote 4:1 UNUN \$27.95

## Radio

The RadioWavz baluns are designed to handle full legal power with a low standing wave ratio (SWR).



1:1 Air	B11a	24.95
1:1 Ferrite	B11f	34.95
1:1 Isolation	B11i	34.95
1:4 Voltage Air	B14va	25.95
1:4 Voltage Ferrite	B14vf	29.95
1:4 Current Air	B14ca	32.95
1:4 Current Ferrite	B14cf	44.95
1:6 Current Isolation	B16ci	39.95
1:9 Balun Isolation TX	B19tx	39.95

## **Loading Coils**

# Radiowayz

**Patriot Adjustable Loading Coil System** 



The Patriot adjustable loading coil system is the perfect alternative approach for people who live in small spaces. This is not just a simple coil, but a part of a vertical antenna system that can be configured to meet diverse needs. Configure as a vertical antenna, a ground mounted vertical, or, with two units, as

It is a great match for rooftops, balconies, on vehicles, boats, expeditions, and for the beach or lake side.

The Patriot systems can handle 500 Watts SSB and 200 Watts CW.

		HRO
Product	Model	<u>Price</u>
40 m	P40	\$54.95
80 m	P80	69.95
80 m Stainless	P80S	104.95

Call toll-free for Quotes

# **HF / VHF VERTICAL BASE ANTENNAS**



#### **Titan DX**

The Titan is a center fed GAP vertical, that provides a host of benefits in a rugged, yet manageable form. The Titan offers broad, continuous frequency coverage in a no tune, easy to assemble format. Designed to work in a limited space or as the perfect com-

pliment to an antenna farm. NO RADIALS required.

Total continuous coverage under 2:1 on 10m, 12m, 15m, 17m, 20m, 30m, 40m, and 100 kHz on 80m.

## Challenger

The Challenger is capable of operating on eight separate bands from 3.5 MHz to 144 MHz. Use it on 80, 40, 20, 15, 12. 10. 6 and 2 meter bands with over 130 kHz bandwidth on 80 m.

The antenna is designed to be mounted directly in the ground or elevated. A ground mount is provided. The Challenger may be roof mounted. The antenna requires a counter poise of three 25 foot insulated wires.

Model	Bands	Bandwidth (under 2:1)	Height (ft)	Weight (lbs)	Mount	Counter poise	Gound Area Required	HRO Price
Challenger	80,40,20, 15,12,10, 6,2m	Entire band except 130kHz 80m	31.5	18	Gound or elevated. Ground Mt supplied	3 at 25'	10' x 12'	CALL
Voyager DX	160,80,40 20m	Entire band except 900kHz 160m	45	30	Ground. Aluminum pivot and guy brackets supplied	3 at 57'	4 guy points 25 ft from base	CALL
Eagle DX	40,20,17, 15,12,10m	Entire band except 500 kHz 10m	21	11	Most anywhere. Pole mount supplied for 1.25 ant Mast	3 rigid at 80" long		CALL
Titan DX	80,40,30, 20,17,15, 12, 10m	Entire band except 100 kHz 80m	25	25	Most anywhere. Pole mount supplied for 1.25 ant Mast	4rigid at 80" long		CALL

\* All GAP antennas shipped PLUS freight

## **Eagle DX**

The Eagle DX weighs just 11 pounds and can be installed almost anywhere. It is essentially a set of vertical dipoles with no traps, coils or transformers.

It covers 40, 20, 17, 15 and 10 meters with the entire band at a VSWR of 2:1 or less. For 10 m this is 500 kHz. No antenna tuner is required.



## **Voyager DX**

The Voyager DX is manufactured specifically to provide efficient low band operation from the typical backyard without a huge investment in time, money, or space.

It is not another "add a kit" antenna for 160m, GAP technology opens up the low bands. Emphasis was given to 160 m and 80 m when designing the Voyager.

The antenna employs a capacity hat with circular ring to reduce the physical height to 45 feet while maintaining an

electrical height of 66 feet. Parallel tuner rods are used in its design. No tuning or matching are required to put the Voyager on the air.

## **Ultra-Compact Vertical**

# Maldol

## 8 Bands on HF / 2m / 70 cm HRO Price \$339.95



At only half the height and weight of traditional HF vertical antennas, model HVU-8 includes 2m and 70cm. It is easily configured and installed in confined or restricted spaces such as apartment balconies, or for temporary use. Each HF

band and 6m has an independently tuned radiator and radial system while the main antenna mast is tuned for constant operation on 2m / 70 cm.

- HF and 6m: 1/4 wave.
- · 2m: 1/2 wave 2.15 dBi gain.
- 70cm: two 5/8 waves in phase, 5.5 dBi gain.
- · Impedance: 50 Ohm.
- Max power HF: 200 W SSB; 6m-70 cm: 150 W FM.
- · Height: 8 ft 6 inches.
- · Weight: 5 lbs 7 ozs.

## HF + 6m Verticals

# hy-gain

#### **AV-640**

Uses quarter wave stubs on 6, 10, 12, and 17 meters and efficient end loading coil and capacity hats on 15, 20, 30, and 40 meters. No radials. No traps. No ground. No tuning. Handles 1500 Watts. Sleek, low profile, Small area required for mounting. Automatic bandswitching, single coax cable feed, each band is individually tunable, wide VSWR bandwidth.

#### AV-620

Covers all bands 6 through 20 Meters.

Hygain also sells a large assortment of multi-band beams, wire antennas, and other verticals. Ask about baluns, aluminum tubing, and parts.



# **HF / VHF / UHF BASE ANTENNAS**





## **New Generation XR Series Multiband Yagis**

Force 12 has an all-new lineup of multiband Yagis covering the higher HF bands. Some now include 6 meters to match the capabilities of many modern rigs. The XR Series antennas are multiple monoband Yagis stacked together on one boom using Force 12's unique one-feedline hybrid drive system. All are trapless, very rugged, and have improved pattern and bandwidth.

#### XR3 20-15-10 m

6 elements on 10'2" boom. Ideal Contest bands beam.

- HRO Price \$1189.95

#### XR4 20-15-10-6 m

8 elements on 11'6" boom. Contest bands + 6m.

- HRO Price 1289.95

#### XR5-S 17-15-12-10-6 m

9 elements on 11'6" boom for everything above 20m.

- HRO Price \$1389.95

#### XR5-T 20-17-15-12-10 m

9 elements on 11'6" boom. Covers all upper HF bands

- HRO Price \$1489.95

#### XR6 20-17-15-12-10-6 m

11 elements on 11'10" boom. All bands from 20-6 meters.

- HRO Price \$1589.95

## 6m / 2m / UHF Beams



## **Ham Starter Antennas**



50 MHz, 144 MHz, 220 MHz, or 440 MHz Beams



These low cost antennas have a single heavy duty mounting cradle and stainless steel hardware - the quality struction you have come to

#### 6M-3SS

3 elements on 50 MHz HRO Price \$184.95

#### 2M-3SS

3 elements on 144 MHz HRO Price \$104.95

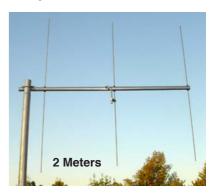
#### 222-5SS

5 elements on 220 MHz **HRO Price \$99.95** 

#### 440-6SS

6 elements on 440 MHz HRO Price \$79.95

expect from M2. Built with size and portability in mind, these antennas are great for field days, mountain topping, fox hunts, DXpeditions, and ATV use. The antennas break down to no more than 40" long, making them a natural for travel.



## Cobra UltraLites

#### **UltraLite Senior**

160-10 Meters, 140 feet HRO Price \$125.95

#### **UltraLite Junior**

80-10 Meters, 73 feet HRO Price \$115.95

#### UltraLite Kid

40-6 Meters, 41 feet HRO Price \$99.95

On its primary and harmonic operating frequencies, the Cobra antenna works identically to a ladder-line fed doublet, but its unique close-spaced multi-wire element also introduces two additional resonant responses below the antenna's fundamental operating frequency. These responses extend frequency

coverage far beyond that of a conventional doublet or G5RV. For example, the 140-foot (80 meter) Cobra also resonates near 2.8 MHz and on 160 meters. Similarly, the 73-foot (40 meter) Cobra also covers 60 and 75 meters.

UltraLite Cobras are designed and engineered to survive harsh winters. Weighing only four pounds including the feedline, they install quickly and pull up higher with far less stress on tree branches

and support lines. The black marine-grade ABS insulators won't deteriorate in sun or fracture in cold. All hardware is stainless. All wire is UV stable and pull-tested for strength. UltraLites come pre-assembled and ready to install with 100-feet of rugged copper-weld ladder line attached.

All Cobras require a tuner. In most installations, the auto-tuner built in to your transceiver should provide sufficient tuning range. Because the Cobra presents a balanced load, we recommend installing a 4:1 current-style balun at the station end of the feedline (many external tuners provide a built-in balun).



86

# **HF LONG WIRE ANTENNAS**

# RadioWavz



**HRO** Product Model Price

Dipoles with 1:1 Balun

160 m 160DP11 79.95 80 m 80DP11 69.95 40 m 40DP11 47.95 20DP1 20 m 39.95 10DP11 10 m 39.95

**DX Loop** 

80 m 80LP 119.95 40 m 40LP 79.95 20 m 20LP 59.95 6 m 6LP 45.95 2LP 45.95 2 m

**DX (OCF) Windom** 

DX 40 DX40 59.95 DX 80 DX80 79.95 DX 160 DX160 119.95

HRO Product Model Price

#### **G5RV Line**

(w / heavy duty ladder line) G5RV Jr. \$32.95 G5RV Lite-E 69.95 G5RV-E 64.95 G5RV MAX-E 94.95

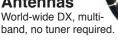
#### **Double Bazooka**

160 m	160DBZ	129.95
80 m	80DBZ	95.95
75 m	75DBZ	75.95
60 m	60DBZ	70.95
40 m	40DBZ	59.95
20 m	20DBZ	39.95
17 m	17DBZ	37.95
15 m	15DBZ	37.95
12 m	12DBZ	39.95
10 m	10DBZ	37.95
6 m	6 DBZ	35.95
2 m	2DBZ	35.95

## **HF OCF Antennas**



Off-Center-Fed (OCF) **HF Dipole Antennas** 



4-Band: 40, 20, 10, & 6 meters.

68 feet (23+45) long.

DX-OCF-40 300W HRO Price \$204.95 DX-OCF-HP40 3kW HRO Price \$294.95

7-Band: 75 / 80, 40, 20, 17, 12, 10, 6 meters.

135 feet (45+90) long.

DX-OCF 300W HRO Price \$214.95 DX-OCF-HP 3kW HRO Price \$299.95

8-Band: 160, 75/80, 40, 20, 17, 12, 10, 6 meters.

270 feet (90+180) long.

DX-OCF-160 300W HRO Price \$279.95 HRO Price \$364.95 DX-OCF-HP160 3kW

Call toll-free for Quotes

# 80 - 2 m MFJ - 1798Ten band halfwave vertical antenna.

Covers 10 bands: 75 / 80, 40, 30, 20, 17, 15, 12, 10, 6 and 2 meters. No ground radials or ground needed because of the effective counterpoise that is 12 feet across. Mount from ground level to roof top. The feedline is isolated from the antenna using MFJ's AirCore™ balun. Achieves full-sized performance with full-size radiators for 2-20 meters and high efficiency end-loading for 30, 40 and 75 / 80 meters. UPS Shippable.



## MFJ-1778

160 - 10 m

**G5RV** 

All-band G5RV antenna. 102 feet long, 32.5 foot ladder line ending in SO-239 connector for coax feedline. 1500 Watts. 80-10 m, 160 meters with tuner/ ground.

## 40 - 10 m G5RV Junior

#### MFJ-1778M

G5RV Junior. Half-size, 52 feet. Covers 40-10 meters.

## 40 – 2 m Mini-dipole

#### MFJ-1775

1/2 Wave. 6-band rotatable minidipole. Just 14 feet wide, can be turned by a small TV-type rotator. Covers 40 through 2 meters, handles 1500 Watts.

#### 40 - 6 m Vertical

#### MFJ-1796

6 band vertical covers 40 through 6 meters. 12 feet tall with tiny 24-inch footprint. Mounts anywhere, handles 1500 Watts PEP.

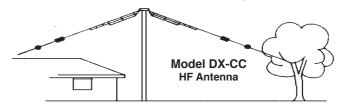
## **Limited Space Antennas**

# AI OHA DELTA

All of Alpha Delta's limited space antennas use stainless steel hardware where required, are fully assembled, and are manufacturered to withstand severe weather. SO-239 connectors.

Model DX-B is a single wire, high performance quarter-wave sloper antenna for 160, 80, 40 & 30 meters. For limited space, the antenna requires only 60 feet for installation. Use with a wide range antenna tuner. Pre-assembled and pre-tuned. Has stainless steel hardware, 12 gauge insulated solid copper wire and the Alpha Delta "ISO-RES" RF choke coils, 50 ohm coax feed. Full legal power. HRO Price \$109.95

Model DX-A: A quarter wave twin sloper for 160-80-40 meters. One leg is 67' and the other 55'. Installs as an inverted-V. HRO Price \$99.95



Model DX-CC: Ano trap 80-40-20-15-10 meter dipole. 82'long. HRO Price \$159.95 Model DX-DD: A no trap 80-40 meter dipole. 82' long. HRO Price \$129.95 Model DX-EE: A no trap 40-20-15-10 meter dipole. Only 40' long. HRO Price \$139.95

# **PORTABLE & SPECIALTY ANTENNAS**

10 m - 40 m Portable

# AlexLoop



Small magnetic loop antenna covers 6.95 MHz to 29.7 MHz transmit and receive. It breaks down into 3 small 15-inch pieces, and fits into a small cushioned bag. The antenna assembly includes: the 7 to 30 MHz tuner, the middle joint piece, and the exciter loop. The antenna can be quickly mounted and disassembled for easy carrying. **HRO Price \$369.95** 

## **Portable HF Antenna**





This antenna for backup emergency HF system or permanent installation has an integral broadband impedance matching network (transformer 5:1) allowing broadband antenna tuning. It is the perfect backup antenna for apartments, condominiums, homeowners associations, deed restrictions, and CCRs (Covenants, Conditions and Restrictions), ARES, RACES, MARS, EMCOMM, NVIS, first responders, and especially for emergency preparedness.

The unit is totally waterproof. The antenna is 60' long and covers 6 m to 160 m. An external tuner is required. It weighs 1 pound and has a PL-259 RF connection.

The antenna will perform very well as a sloper or an inverted "V" configuration. For a NVIS configuration (40 m - 80 m) the antenna must be installed horizontally with the ground and elevated between 9' and 12' high. It does not require any ground-plane but will perform better with one. A ground terminal is available for that purpose. **HRO Price \$114.95** 

# YAESU

The radio

## HF Dipole Antenna YA-30

This 83-foot broadband dipole provides optimum performance over 1.8-30 MHz. Usual requirements for an antenna tuner between the rig and antenna are eliminated by the unique broadband design. Handles 150 Watts at an SWR of less than 1.9:1 on the amateur bands. Preassembled and pretuned. Can be installed as a horizontal flat-top, inverted-V, or sloper. 100 feet of RG-8X with PL-259 included. HRO **Price CALL** 

# HF / VHF / UHF Mobile Antenna > ATAS-120A

The ATAS-120A provides HF/VHF / UHF coverage with automatic motorized tuning. Control radiator length from the transceiver for best SWR. Compatible with Yaesu's FT-100, FT-847, FT-857, and FT-897. HRO Price CALL

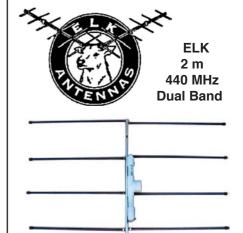
# HF / VHF / UHF Portable Field Antenna ATAS-25

The ATAS-25 has radiating elements covering amateur bands 10-40 m, 6 m, 2 m, and 70 cm. Mounts to a standard camera tripod (not included). Uses a manual tuning system. Dual frequency operation possible with a duplexer (not included). Antenna collapses to less than two feet to carry; expands to 7.2 foot maximum height. This is an ideal system to use with the FT-817, FT-897, and FT-857 transceivers. Weight is 2.05 pounds. **HRO Price CALL** 

Visit HRO's secure website http://www.hamradio.com

Most orders over \$100 ship free UPS Brown

## Log Periodic



The Elk 2 m / 440 is a dual band log periodic antenna for 144-148 MHz and 430-450 MHz. The antenna features 6.6 dBd gain on 144 MHz and 7 dBd on 440 MHz. The SWR is 1:1 in these frequency ranges. The antenna handles 200 Watts on 144 MHz and 100 Watts on 440 MHz. The boom length is 24 inches and the antenna weighs only 1.4 pounds.

The ELK 2 m / 440 assembles quickly with color coded threaded elements that screw into the color coded boom. Access two bands with just one coax fitting. No duplexer is required. All of the band may be used without retuning. Easily change the polarity of the antenna by twisting the mounting assembly. **HRO Price \$CALL** 

## **Wireless Antennas**



## Wi-Fi / 802.11b Wireless LAN Antennas

NGC offers a wide selection of directional and omnidirectional antennas for Amateur Television, the ISM band, LAN / WAN, data links and wireless internet.

#### GP-24R

ATV/ISM band: 2400-2500 MHz. Omnidirectional gain: 15.4 dBi.

Height: 5' 10". Connector: N-Type. HRO Price: \$149.95

#### **GP-24-3**

Same as GP-24 but omnidirectional with 3 degree electrical downtilt.

HRO Price: \$159.95





# **MOBILE VHF / UHF ANTENNAS**

## Antenna Mounts

# ALPHA DELTA



# Outpost™ Tripod / Ground Coupler Ground Mount System HRO Price \$275.95

- Matches the base impedance of most mobile HF antennas.
- Fold-over 3/8 x 24 SO-239 top mount.
- Constructed of aircraft 6061-T6 aluminum, stainless steel hardware and wing nuts.
- No digging—no holes in ground—no concrete.
- Fold-out legs act as a large capacitor providing proper coupling to the ground and proper base impedance to the antenna. Fold-up design for 10-minute installation.

# GlenMartin Towers



leviating crowded ground-based towers. Whatever the case, GlenMartin Roof-Top mounts are the Solution! Besides unprecedented strength, our roof mounts are maintenance free. No guying required, and all parts are labeled for easy installation. The anodized satin-finish construction will add to the beauty of your roof line for years to come. All roof-tops are UPS shippable. **HRO Price: \$CALL** 

## **Line Thrower**

# E Z HANG



The improved EZ Hang's construction is steel attached to a corrosive-resistant plastic and stainless steel reel that comes with 300 feet of 10-pound-test monofiliament line installed, an easy-to-see "bright yellow" one-ounce lead weight, and a quick-disconnect clip to release the weight. The EZ Hang now has a foldable wrist support and UV-resistive custom 11"-long bands.

Use the EZ Hang to "throw" a line up to 100 feet over a tree or other object. Cable pullers use the EZ Hang to "throw" a line through a dropped-ceiling or plenum to avoid using long pull-rods. It cuts installation time dramatically. The EZ Hang comes with a one-year limited warranty.

#### **Basic Slingshot Package**

Includes 2 weights, 2 clips, and the EZ Hang. HRO Price \$79.95

#### **Square Shot Kit**

Includes 5 weights, 5 clips, the EZ winder with 500 feet of 155-pound test orange braided line, a stakable handle to hold the dispenser upright, and the EZ HANG. **HRO Price \$99.95** 

#### **Hyper Package**

Comes with EZ winder (immediate line dispenser) with 500 feet of orange braided line, a stakable handle to hold the dispenser upright, 3 weights, 3 clips, a bright green tennis ball, and the EZ Hang. **HRO Price \$104.95** 

## The Owl

Want to keep those birds off your antenna system?

The OWL is just the trick. Mount this fella on top of your tower and the birds will stay away.

HRO Price \$19.95



## 2 Meter Antennas



## 2m Eggbeater

EB-144 / RK2M

Use the Eggbeater for fixed and mobile operations. It produces smooth omnidirectional horizontal polarity at the horizon. Above the horizon, the pattern transforms to right hand circular off the top making it a natural for

OSCAR use. No rotation or steering is required. HRO Price \$Call



## 2m HO Loop

Shown with optional mag mount

Nothing satisfies more than our 2 m "HO" Loop for horizontal performance. This easily adjustable antenna has plenty of bandwidth. It will handle a KW plus. Stack antennas for

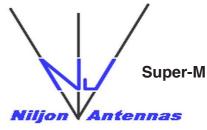
more gain.

The Loop has durable construction for "tree bashers."

Have no weather worries with

the bright aluminum standard finish or an anodized finish in gold, black, turquoise or green. **HRO Price \$Call** (Colored versions higher)

## **VHF / UHF Mobile**



144 MHz / 220 MHz / 440 MHz with Wide Receive

The typical 1/4 wave antenna used on commercial (taxis, trucking companies, etc.) and government vehicles (ambulances, other city vehicles, school buses, state patrol, etc.) can easily be replaced by the Super-M with tremendous, even life-saving, results. One antenna receives 25 to 1300 MHz and transceives on 140-170 MHz, 200-225 MHz and 400-480 MHz. It handles 200 Watts with a direct feed and is only 19" high.

SUPER-M V/U-NMO comes packaged with an adapter to screw onto a Motorola NMO style mount. HRO Price: \$79.95





# **BASE ANTENNAS**

## **Cushcraft HF Antennas**

Model	Bands	Ele	Fwd Gain dBi	Max F/B dB	Min SWR				Boom Diameter		gest (Ht)	Turr Rad		Max Di			l Surf rea	Ship Wei	ping ight
						FT	М	IN	CM	FT	М	FT	М	IN	CM	SQFT	SQMT	LBS	KG
MA-5B	10 12 15 17 20 meters	3	5.3 10m 1.0 12 m 4.8 15m 1.0 17m 3.6 20m	22	1.2:1	7.3	2.2	1.5	3.8	17.5	5.3	8.8	2.7	1 1/2	3.8	3.22	0.3	26.5	12
MA-5VA	10,12,15,17,20 m	1	1-2		1.2:1					14.7	4.48							6.5	2.95
MA-6VA	6. 10.12.15.17.20 m	1	1-2		1.2:1					14.7	4.48							6.5	2.95
R6000	20 - 10 + 6 meters	1	3		<1.2:1					19	8.7			1 3/4	4.4	1.5	0.14	12.5	5.6
R8	40 30 20 17 15 12 10 6m	1	3		<1.3:1					28	7.3							23	10.5
A3S	20 15 10 meters	3	8	25	<1.2:1	14	4.3	1.5	3.8	27.8	8.5	15.5	4.7	2	5.1	4.4	0.41	30	13.6
A743 Kit	40m for A3				<1.2:1					35	10.7	15.5	4.7	2	5.1	0.06	0.06	7	3.2
A3WS	17 12 meters	3	8	25	<1.2:1	14	4.3	1.5	3.8	25	7.6	14.4	4.4	2	5.1	4.1	0.38	26.5	12
A103 Kit	30m for A3WS				<1.2:1					32	9.8	14.4	4.4	2	5.1	0.04	0.04	6	2.7
A4S	20 15 10 meters	4	8.9	25	<1.2:1	18	5.5	2	5.1	32	9.8	18.4	5.6	2	5.1	5.5	0.51	38	17.2
A744 Kit	40m for A4S				<1.2:1					35	10.7	18.4	5.6	2	5.1	0.3	0.03	7.5	3.4
TEN-3	10 meters	3	8	25	<1.2:1	8	2.4	1.4	3.5	18	5.5	9.8	3	2	5.1	2	0.19	10.5	4.8
XM240	40 meters	2	6	25	1.1:1	22	6.7	2.5	6.3	43	13.1	24.3	7.4	2.5	6.35	5.5	0.51	59	26.8
D3	20 15 10 meters	1			<1.2:1					26	7.9	4	1.2	2	5.1	0.9	0.08	11	5
D3W	17 12 meters	1			<1.2:1					34	10.4	5	1.5	2	5.1	0.9	0.08	13	5.9
D4	40 20 15 10 meters	1			<1.2:1					36	11	5.5	1.7	2	5.1	1.3	0.12	15.5	7
D40	40 meters	1			<1.2:1					42	12.8	6.5	2	2	5.1	1.7	0.16	15	6.8
AR-10	10 meters	1	3		<1.2:1					17.6	5.4			1 1/4	3.2	1 2/3	0.16	5	2.3

## **Cushcraft VHF / UHF Antennas**

Due to rapidly increasing raw material and transportation costs, call for availability and pricing.

Model	Frequency Coverage	Ele	FWD Gain dBi	Max F/B dB	Conn	Polaria	zation	Bo Len	om gth	Long Ele	•	Turr Rac	•	Max I Di		Wind S	urf Area	Ship Wei		HRO Price
			,			HORZ	VERT	FT	М	FT	М	FT	М	IN	CM	SQFT	SQMT	LBS	KG	Į.
A13B2	144-148	13	15.8	26	U	Υ	Υ	15	4.6	3.4	1	8.9	2.7	2	5.1	1.8	0.17	9.5	4.3	\$239.9
A17B2	144-145	17	18	26	N	Υ	N	31	9.4	3.4	1	17.3	5.3	2	5.1	3.9	0.36	18	8.2	\$349.9
224WB	222-225	4	10.2	24	U	Υ	Υ	3	0.09	2.2	0.7	3	0.9	2	5.1	0.23	0.02	2.5	1.1	\$99.9
A50-3S	50-54	3	8	20	U	Υ	N	6	1.8	9.8	3	6	1.8	2	5.1	1.8	0.17	8.5	3.9	\$139.9
A50-5S	50-54	5	10.5	24	U	Υ	N	12	3.7	9.8	3	7.5	2.3	2	5.1	2.7	0.25	13	5.9	\$189.9
A50-6S	50-54	6	11.6	26	U	Υ	N	20	6.1	9.8	3	11	3.4	2	5.1	4.5	0.42	22	10	\$389.9
A148-3S	144-148	3	7.8	25	U	Υ	Υ	2.8	0.9	3.3	1	2.8	0.9	2	5.1	0.27	0.03	3	1.4	\$66.9
A148-10S	144-148	10	13.2	24	U	Υ	Υ	12	3.7	3.3	1	6	1.8	2	5.1	1.2	0.11	6	2.7	\$129.9
A148-20T	144-148	20	13	20	U	Υ	Υ	10.8	3.3	3.3	1	6.8	2.1	1.5	3.8	1.4	0.13	7.5	3.4	\$204.9
A449-6S	440-450	6	10.5	18	U	Υ	Υ	2.9	0.09	1.1	0.3	2.9	0.9	2	5.1	0.3	0.03	2.5	1.1	\$72.9
A430-11S	430-440	11		20	U	Υ	Υ	4.2	1.3	1.1	0.3	2.8	0.9	2	5.1	0.39	0.04	3.5	1.6	\$99.9
A449-11S	440-450	11	13.2	20	U	Υ	Υ	4.2	1.3	1.1	0.3	2.8	0.9	2	5.1	0.39	0.04	3.5	1.6	\$109.9
AR270	144-148	1	3		U		Υ			3.75	1.13			2	5.1	0.27	0.03	2	0.9	\$129.9
	430-450	1	5.5		U		Υ													
AR270B	144-148	1	5.5		U		Υ			7.7	2.3			2	5.1	0.47	0.044	2.4	1.09	\$179.9
	430-450	1	7.5		U		Υ													
A270-6S	144-148	3	7.8	20	Ü	Υ	Ÿ	2.8	0.09	3.4	1	2.8	0.9	2	5.1	0.3	0.03	3.5	1.6	\$119.9
	430-450	3	7.8	18	Ü			2.0	0.00	0.1		2.0	0.0	_	0	0.0	0.00	0.0	110	\$110.0
A270-10S	144-148	5	10	20	Ü	Υ	Υ	6.2	1.9	3.4	1	6.2	1.9	2	5.1	0.73	0.07	5	2.3	\$159.9
	440-450	5	10	18	Ü	-		0.2		0.1		0.2	1.0			00	0.01			<b>V</b> 100.0
A6270-13S	6m,2m,70cm	5	8 6m 10 2m 10 70cm	20	U	Υ	Υ	8.8	2.56	9.7	3	6.16	1.87	2	5.1	2.52	0.23	9.5	4.3	\$279.9
AR-6	50-54		3		U	N	Υ			10.1	3.1			1.25	3.2	0.37	0.03	4	1.8	\$99.9
AR-2	135-160		3		U	N	Υ			3.9	1.2			1.25	3.2	0.21	0.02	2	0.9	\$64.9
AR-450	440-460		3		U	N	Υ			1.4	0.42			0.75	0.88	0.1	0.01	2	0.8	\$47.9
ARX-2	137-160				U	N	Υ			9.3	2.8			1.25	3.2	0.33	0.03	2.5	1.1	\$79.9
ARX-2B	134-164		7		U	N	Υ			14	4.3			1.25	3.2	0.5	0.05	3.5	1.6	\$99.9
ARX-220B	220-225		7		U	N	Υ			9.3	2.8			1.25	3.2	0.3	0.03	3	1.4	\$109.9
ARX-450B	435-450		7		U	N	Υ			5	1.5			1	1.5	0.2	0.02	2	0.9	\$99.9



# CØMET cor

## **Comet Dual-Band Antennas**

MODEL	BANDS	GAIN MAX PWR Watts		CONN	WGT Lbs' oz"	LEN FT' In"	MAX Wind Speed MPH	HRO Price							
	Dual Band Base Station Repeater Antennas														
GP-9/GP-9N*	2m/70cm	8.5/11.9	200	SO/N	5'11"	16'6"	90	\$199.95							
GP-6	2m/70cm	6.5/9.0	200	SO-239	3'8"	10'5"	90	\$149.95							
GP-3	2m/70cm	4.5/7.2	200	SO-239	2'12"	5'11"	112	\$99.95							
GP-1	2m/70cm	3.0/6.0	200	SO-239	2'	4'2"	135	\$74.95							
	Dual Ba	nd Mobi	le Anten	nas - All B	ack An	odized									
SBB-7/SBB-7NMO	2m/70cm	4.5/7.0	70	PL/NMO	_	4'7"	-	\$79.95							
SBB-5/SBB-5NMO	2m/70cm	3.0/5.5	120	PL/NMO	12	3'2"	-	\$58.95							
SBB-2/SBB-2NMO	2m/70cm	2.15/3.8	60	PL/NMO		20"	-	\$42.95							

\* some longer antennas require additional freight

## **Comet Tri-Band Antennas**

MODEL	BANDS	GAIN	Max Pwr Watts	CONN	WGT Lbs' oz"	LEN FT' In"	Max Wind Speed MPH	HRO Price					
	TrBand	Base Station	Repeater I	Antenna	S								
GP-15 *	6m/2m/70cm	3/6.2/8.6	200	SO-239	2'15"	7'11"	90	\$169.95					
GP-98	2m/70cm/23cm	6.5/9.0/13.5	100	N-Female	3'6"	9'4"	90+	\$189.95					
CX-333	2m/220/70cm	6.5/7.8/9.0	120	SO-239	3'10"	10'2"	112	\$169.95					
TriBand Mobile Antennas													
SBB-15	6m/2m/70cm	2.15/4.5/7.2	120	PL-259	-	4'10"	-	\$84.95					
SBB-14	6m/2m/70cm	0/3.5/6.0	120	PL-259		3'7"		\$59.95					
SBB-14NMO	6m/2m/70cm	0/3.5/6.1	120	NMO		3'7"		\$67.95					
SBB-97	2m/70cm/23cm	3.0/6.8/9.6	100	N-Male	•	3'3"	•	\$84.95					
SBB-224	2m/220/70cm	2.15/3.2/5.5	150	PL-259	-	3'1"	-	\$79.95					
SBB-224NMO	2m/220/70cm	2.15/3.2/5.5	150	NMO	-	3'1"	-	\$78.95					
		HF An	tennas										
UHV-6	40/(20*)/(17*)15/1 0/6/2m/70cm	HF 0 dBi 2m 2.15 dBi 70cm 5.5 dBi	120 SSB HF 100W FM 6-70cm	PL-259	MAX 1'4"	MAX 6'4"	-	\$154.95					
*L-14	Opt 20m coil for UHV-6						ī	\$31.95					
*L-18	Opt 17m coil for UHV-6						-	\$29.95					
*L-3.5	Opt 75/80m coil for UHV-6							\$34.95					
CHA-250B	Ground Plane 3.5-57 MHz		150W SSB HF 125W CW	SO-239	7'11"	23'8"	67.5	\$399.95					

#### 6 Meter Antenna

MODEL	Description	FREQ	GAIN	F/B	Max Pwr Watts	CONN	SWR	LEN FT'In"	HRO Price
CA-52HB4	4 element beam	50-54 MHz	-	19 bD	400 W PEP	SO-239	<1.5:1	10'6 Boom	\$129.95

\* For the UHV-6 optional bands.

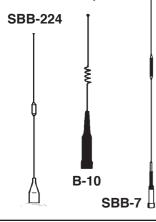
## GP-9 Dual- & Tri-band VHF / UHF

GP-6

**GP-98** 

Comet developed the Super Linear Converter (SLC) to increase actual gain of dual and triband antennas.

- A complete pre-formed phasing coil and phosphorus copper element eliminate additional components and gain loss.
- The SLC is electrically very efficient, providing a low angle of radiation, directly to the horizon.
- Comet sectional antennas use ABS (Transparent to RF) connecting joints for the finest pattern and easiest assembly.





# **DUPLEXERS**

### 2 m and HT Antennas

MODEL	BANDS	GAIN	Max Pwr Watts	CONN	LEN FT'In"	HRO Price		
	Single Band Antennas							
SBB-25/SBB-25NMO	2m	4.1	100	PL-259/NMO	4'8"	\$48.95		
HT Antennas								
CH-32 MINI Ant	2m/70cm		10	BNC	1.75"	\$29.95		
MH-510	6m/2m/70cm	0/0/3.2	10	SMA	20.75"	\$37.95		
MH-511	6m/2m/70cm	92 <b>—</b> 7	10	SMA	4.25"	\$33.95		
HT-224	2m/220/70cm	1.3/1.4/1.8	10	SMA	11"	\$47.95		
SMA-501 MINI Ant	2m/70cm	-	10	SMA	1.5"	\$29.95		
SMA-3	2m/70/23cm	1.2/1.7/3.4		SMA	9.75"	\$39.95		
SMA-24/SMA-24J	2m/70cm	2.15/5.3	20	SMA/Rev SMA	17.5	\$24.95		
BNC-24	2m/70cm		20	BNC	17.5	\$24.95		
SMA-503/SMA-503J	2m/70cm	Ţ	10	SMA/Rev SMA	8.5"	\$29.95		
CH-75	2m/70cm	-/3.2	50	BNC	14.75	\$25.95		
SH-95	2m/70/23cm	1.5/2/5.5	10	BNC	15"	\$34.95		

## **Comet High-Power Duplexers and Triplexers**

Zinc-alloy, die-cast, twin cavity, low input loss, high-isolation, and high-power. Modernize your station with Comet high-performance antenna products.

MODEL	PORT	Freq MHz	CW Watts	PEP Watts	Loss dB	Isol dB	Mix Conn	Port Conn	HRO Price
CF-416A (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.15 0.25	60 60	SO-239	PL-259 w/leads PL-259 w/leads	\$49.95
CF-416C (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.15 0.25	60 60	N- Female	PL-259 w/leads N-Male w/leads	\$54.95
CF-4160I (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.1 0.2	60 60	SO-239	PL-259 w/o leads N-Male w/o leads	\$48.95
CF-4160K (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.1 0.2	60 60	SO-239	PL-259 w/o leads PL-259 w/o leads	\$48.95
CF-416B (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.15 0.25	60 60	SO-239	PL-259 w/leads N-Male w/leads	\$49.95
CF-706A (2m/70cm)	LPF HPF	1.3-75MHz 75-470MHz	175 175	350 350	0.5 0.5	40 40	SO-239	PL-259 w/leads PL-259 w/leads	\$69.95
CF-530 (6m/125-470)	LPF HPF	1.3-90MHz 125-470MHz	350 350	600 600	0.2 0.2	45 45	SO-239	PL-259 w/leads PL-259 w/leads	\$74.95
CF-530C (6m/125-470)*	LPF HPF	1.3-90MHz 125-470MHz	350 350	600 600	0.2 0.2	45 45	PL-259	SO-239 w/o leads SO-239 w/o leads	\$74.95
CF-360A (10m/6m)	LPF HPF	1.3-30MHz 50-470MHz	350 350	600 600	0.2 0.2	45 45	SO-239	PL-259 w/leads PL-259 w/leads	\$69.95
CFX-4310C (2m/70cm/1.2)	LPF BPF HPF	1.6-60MHz 100-150MHz 350-500MHz 840-1.4GHz	600 450 300 100	1KW 800 500 200	0.15 0.25 0.25 0.3	50 50 50 50	N- Female	PL-259 w/o leads PL-259 w/o leads N-Male w/o leads	\$79.95
CFX-514 (6m/2m/70cm)	LPF BPF HPF	1.3-90MHz 130-200MHz 380-500MHz	450 450 300	800 800 500	0.2 0.25 0.3	55 55 55	SO-239	PL-259 w/leads PL-259 w/leads PL-259 w/leads	\$79.95
CFX-514J (6m/2m/70cm)	LPF BPF HPF	1.3-90MHz 130-200MHz 380-500MHz	450 450 300	800 800 500	0.15 0.2 0.25	55 55 55	SO-239	SO-239 w/o leads SO-239 w/o leads SO-239 w/o leads	\$79.95
CFX-324A (2m/220/70cm)	LPF BPF HPF	1.3-150MHz 200-320MHz 390-500MHz	350 350 350	600 600 600	0.2 0.25 0.3	40 40 40	SO-239	PL-259 w/leads PL-259 w/leads PL-259 w/leads	\$88.95
CFX-324B (2m/220/70cm)	LPF BPF HPF	1.3-150MHz 200-320MHz 390-500MHz	350 350 350	600 600 600	0.2 0.25 0.3	40 40 40	SO-239	PL-259 w/o leads PL-259 w/o leads PL-259 w/o leads	\$85.95

\* To run multiple antennas with the Yaesu FT-8900

## **Dual 2 m / 440 MHz**

## 2 m / 70 cm **Mobile Antenna** Now with **NMO Connector** CA-2x4SRNMO

Comet's popular CA-2x4SR broadband mobile antenna now is available with an NMO connector. Black anodized finish. 3.8 / 6.2 dBi gain.

HRO Price \$69.95

# Flexible **Dual-Band**

Convenient, very flexible 2 m / 70 cm 17" antenna. Comes with either a gold-plated PL-259 (Model SBB-1) or NMO connector (Model SBB-1NMO).

146 MHz 1.5 dBi 1/4 wave 446 MHz 2.15 dBi 1/2 wave Max Power: 60 Watts VSWR: 1.5:1 or less HRO Price \$42.95

## **Dual-Band Mag Mount Antenna** M-24

Economical black anodized 2 m /70 cm antenna is 19.5" tall and comes with 13 feet of RG-58/U coax and either a gold-plated PL-259 (Model M-24M) or BNC connector (Model M-24B) or model M-24S (SMA) soldered on.

Gain 146 MHz:

1.7 dBi 3/8 wave

Gain 446 MHz:

4.1 dBi 1/4 + 5/8 wave Max Power: 80 Watts VSWR: 1.5:1 or less Impedance: 50 Ohm

**HRO Price \$39.95** 



## **Duplexer**

## **All-Female Duplexer CF-4160N**

1.3-170 / 350-540 MHz duplexer with three N-female connec-



tors allows the user to attach their own low loss jumpers in the length needed.

HRO Price \$58.95

# **ANTENNA MOUNTS**

## **HF ANTENNAS**

#### **Mounts**



## Vehicle Specific Antenna Brackets

These stainless-steel no-noles-to-drill mounts use an existing fender bolt under the hood. A 3/4-inch hole accepts a standard NMO type connector or use Comet UHF connector mobile cable assemblies. Specific mounts for most popular trucks and SUVs: Chevrolet, Ford, Dodge, GMC. Call HRO for compatibility. *Pictured: DG2ANTPF Dodge Ram 1500 2009-2014*HRO Price \$24.95

# Universal Mount

These universal mounts use the heavy-duty RS-730 lip bracket. Each includes 5 meters (16'6") of deluxe 2-step coax and an antenna mount con-

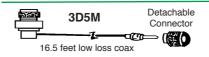
nector: gold-plated PL-259 on coax end with detachable barrel for easy installation. 18-inch lead of mini RG-174 coax for easy entry through the weather seal. Choose the model that has the connector for the antenna you are using.

## Window Gap Jumper

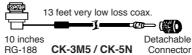


CTC-50M

This device crosses the space between window frames. The frequency range is up to 1.3 GHz with SO-239 connectors. Max pwr HF 100 W PEP, VHF 60 W, UHF 40 W, low loss, 50 ohm impedance. **HRO Price** \$54.95



RG-188 provides easy entry into the vehicle from an exterior mount.



# Roof Rack Mount

This new roofrack mount opens wider than the old version – up to 2.5 inches – and supports bigger antennas. HRO Price \$37.95



## **Comet Mobile Mounting Systems**

Comet has a wide variety of mobile mounts. Choose the mount and coax cable assembly that best fits your personal needs. All Comet cables have detachable connectors.

MODEL	DESCRIPTION	
	Mounts with Coax Cable Installed	
CP-5M	Universal multi-angle lip mount w/deluxe cable SO-239/PL-259 Conn	\$69.95
CP-5NMO	Same as CP-5M but with NMO/PL-259 Conn	\$69.95
HD5-3/8-24	3/8-24 heavy duty lip mount w/ PL-259 connector	\$69.95
LD-5M	Light duty lip mount, 16'4" deluxe cable assembly, UHF Conn	\$55.95
СМ-5М	Standard heavy-duty mag mt with RG-58A/U, coax, UHF conn, max antenna height 4 ft	\$24.95
	Mounting Brackets Only, No Coax	
RS-840	Heavy duty lip mount, low profile, accepts SO-239 connector	\$36.95
RS-730	Heavy duty universal lip mount, accepts SO-239 connector	\$32.95
RS-720	Medium duty universal lip mount, accepts SO-239 connector	\$29.95
RS-720NMO	Medium duty universal lip mount, accepts NMO connector	\$29.95
RS-520	Light duty universal lip mount, accepts SO-239 connector	\$29.95
	Coax Cable Assemblies	
CK-3M5	17 foot high-quality cable includes 12" RG-188 to avoid water leak/cable damage. UHF Conn	\$42.95
CK-3M	Same as CK-3M5 but 9' 9" of deluxe cable assy, UHF Conn	\$35.95
CK-5N	13' 6" of deluxe 2-step cable assembly, N- Conn	\$49.95
5D4N	13' 6" low loss (2400 MHz) coax cable, N-conn	\$34.95
3D4N	13' 6" low loss (1200 MHz) cable assy, N-conn	\$32.95
	Antenna Connector Adapters	
AD-25M	Turns an SO-239 mount into an NMO mount	\$14.95
AD-15M	Turns an NMO mount into an SO-239 mount	\$17.95
AD-10N	Turns an NMO mount into an N-female mount	\$17.95

## **HF Antennas**



# HF Rotatable Dipole CHV-5X

The CHV-5X is a 5 band rotatable dipole covering 40 / 20 / 15 / 10 / 6 meters.

- · Each band is independenty tunable.
- · Turning radius 7 feet. Weighs 5 lb. 14 oz.
- VSWR less than 1.2:1 at center frequency.
- Impedance 50 ohms. Stainless hardware.
- · CBL-2500 2.5 kW balun included.
- Max power: 150 Watts SSB 40 / 20 m; 220 Watts SSB 15 / 10 / 6 m.
- SO-239 connector. Requires mast 1- 2.5 inches.

HRO Price \$319.95

## 40 / 20 / 20 / 10 m Rotatable Dipole H-422

This broad-band, compact, rotatable dipole offers excellent performance even when mounted only 10-15 ft. above ground in a V shape. Heavy duty hardware and 2.5 kW balun are included. During assembly the user chooses any of the three pre-drilled holes to tune the 20 / 15 / 10 m SWR dips to the low- mid- or upper-band ranges simultaneously. 40 m TX bandwidth tunes independently of the other three bands.

- · Length "V" shape 24' 5", Horizontal 33' 10".
- VSWR less than 1.5:1 or less after tuning.
- Impedance 50 ohms. Stainless hardware.
- Wind Load 3.01 sq feet.
- Max Power 1000 W, SSB / 500 W FM.
- · SO-239 connector.

HRO Price \$339.95

## 40 m - 70 cm Mobile Antenna UHV-6

Without HF coils attached, the UHV-6 is a tribander for 6 m / 2 m / 70 cm. The top of the element has a threaded socket for the 40 m, 15 m, or 10 m coils (included), making the UHV-6 a quad-band antenna.

- Optional coils for 80 m, 20 m, 17 m.
- · Easy to mount and configure.
- · Fold-over hinge included.
- GAIN on 2 m: 2.15 dBi;
   70 cm: 5.5 dBi.
- Length 48" to approx. 76" maximum. HRO Price \$154.95

## Quad Band 10/6/2 m/70 cm UHV-4 ---->

Developed for the Yaesu FT-8900. The 10 m and 6 m bands tune independently and will tune for SSB and FM. Length approx. 54". HRO Price \$119.95





Hustler delivers reliability and performance Beyond Your Expectations!

## VHF / UHF Base Antennas

#### 2m Verticals

These easy-to-assemble verticals are made of aluminum and high-strength fiberglass. When disassembled the longest part is about 4'. Choose 3, 6, or 7 dB gain and the overall length that best suits your application.

## G7-144 G7-144

HRO Price \$199.95

- Frequency range: 144-148 MHz.
- · Bandwidth: 4 MHz.
- · Gain: 7 dB.

#### G6-144B

G3- 144

G7- 220

HRO Price \$139.95

- Frequency range: 143-149 Mhz.
- · Bandwidth: 6 MHz.
- · Gain: 6 dB.

#### G3-144

HRO Price \$69.95

- Freq. Range: 144-148 MHz
- · Bandwidth: 4 MHz.
- · Gain: 3dB.

#### 220 & 440 Verticals

#### G7-220

HRO Price \$185.95 The G7-220 is of similar design and construction as the G7-144.

- Freq. Range: 220-225 MHz.
- · Bandwidth: 5 MHz.
- Construction: High strength fiberglass and aluminum.
- Gain: 7 dB.

#### G6-440

HRO Price \$199.95 + frt
The G6-440 is of similar design and construction as the G6-270R.

- Frequency range: 440-450 MHz.
- · Bandwidth: 10 MHz.
- Construction: One piece radome.
- · Gain: 6 dB.

#### **Repeater Antennas**

#### The Spirit Series

Hustler's omnidirectional, collinear design base station antennas are enclosed in a rugged fiberglass radome that will help minimize pattern variations due to high winds or extreme conditions. Models are available for 144, 220, 440, 900 MHz, and 1.2 GHz. The gain will be unity, 3, 6, 9, or 12 dB depending on the frequency.

Call HRO for quotes on custom frequencies.

### 2m / 70 cm Dual Band

## G6-270R Dual band 2 m / 70 cm

HRO Price \$199.95

The G6-270R is a combination G6-144B and G6-440. It is factory tuned for quick and easy installation.

- Frequency range: 144-148 MHz / 435-445 MHz.
- · Gain: 6 dB.
- Bandwidth: 4 MHz 2 m /10 MHz – 70 cm.
- · One piece radome.
- VSWR: < 1.5:1 @ resonance.

## **HF Base Antennas**

## **HF Multi-band**

#### 6-BTV

10, 15, 20, 30, 40, 75 / 80 m HRO Price \$209.95

#### 5-BTV

**10, 15, 20, 40, 75 / 80 m** HRO Price \$189.95

#### 4-BTV

**10, 15, 20, 40 m** HRO Price \$159.95

- Broadbanded, low VSWR at band edges.
   Power capability full legal.
- Power capability full legal limit on SSB or CW.
- Solid one-inch fiberglass trap forms for optimum electrical and mechanical stability.
- Heavy wall, high strength aluminum tubing, heavy duty aluminum mounting bracket and low loss, high strength insulators.
- Stainless steel clamps and hardware.
- · Easy assembly and tuning.
- Single line feed with any length of 50 ohm coax used as ground mount with or without radials, or elevated mount with radials.
- All the BTV's can be mounted in a piece of PVC and disguised as a flagpole in deed restricted neighborhoods.

#### Model 30-MTK

30 meter add on kit for the 4 and 5-BTV

## **HF Resonators**

**BASE ANTENNAS** 

Customize your HF mobile system with Hustler products. Resonators may be used separately on one of the masts or up to three at a time with the VP-1. Add the QD-2, springs and mounts as needed for your installation.





Switch bands automatically with any three Hustler HF resonators. Adapts any Hustler mast to tri-band operation automatically.

## **Hustler HF Resonators**

Model	Туре	Band	Power SSB	Bandwidth 2:1 SWR	Weight lbs	HRO Price
RM-10	Standard	10 m	400 W	150-250 KHz	0.41	\$18.95
RM-11	Standard	11 m	400 W	150-250 KHz	0.41	\$19.95
RM-12	Standard	12 m	400 W	90-120 KHz	0.41	\$18.95
RM-15	Standard	15 m	400 W	100-150 KHz	0.42	\$18.95
RM-17	Standard	17 m	400 W	120-150 KHz	0.44	\$25.95
RM-20	Standard	20 m	400 W	80-100 KHz	0.46	\$25.95
RM-30	Standard	30 m	400 W	50-60 KHz	0.84	\$28.95
RM-40	Standard	40 m	400 W	40-50 KHz	0.84	\$30.95
RM-60	Standard	60 m	400 W			\$30.95
RM-75	Standard	75 m	400 W	25-30 KHz	1.05	\$32.95
RM-80	Standard	80 m	400 W	25-30 KHz	1.05	\$32.95
RM-10-S	Super	10 m	1 kW	250-400 KHz	1	\$27.95
RM-15-S	Super	15 m	1 kW	150-200 KHz	1.2	\$28.95
RM-20-S	Super	20 m	1 kW	100-150 KHz	1.25	\$32.95
RM-40-S	Super	40 m	1 kW	50-80 KHz	1.8	\$41.95
RM-75-S	Super	75 m	1 kW	50-60 KHz	2.1	\$57.95
RM-80-S	Super	80 m	1 kW	50-60 KHz	2.1	\$57.95

## **Hustler Base Antennas**

Model	Band	Gain	Connector	Height ft(m)	HRO
G7-144	2 m	7 dB	N Female	16.3 (4.6)	\$199.95
G6-144B	2 m	6 dB	SO-239	9.8 (2.9)	\$139.95
G3-144	2 m	3 dB	SO-239	7.5 (2.3)	\$ 69.95
G7-220	1.25 m	7 dB	N Female	10.2 (3.0)	\$185.95
G6-440	70 cm	6 dB	N Female	7.3 (2.2)	\$199.95
G6-270R	2 m / 70 cm	6 dB	N Female	7.6 (2.3)	\$199.95
6-BTV	10-30-80 m			24.0 (7.2)	\$209.95
5-BTV	10 to 80 m			25.0 (7.5)	\$189.95
4-BTV	10-40 m			21.4 (8.4)	\$159.95

#### **Hustler VHF / UHF Mobile Antennas**

Model	Band	Gain	Power	Mount	HRO
LMC-270	2 m/70 cm	2.4/4	100	NMO	\$36.95
MX-270	2 m/70 cm	2.4/4	100	Mag	59.95
LMG-144	2 m	3.4	200	NMO	27.95
BBG-144	2 m	3.4	200	NMO	52.95
BBG-440-5	70 cm	5	200	NMO	59.95
BBGT-144	2 m	3.4	200	Trunk	49.95
MX-220	1.25 m	3.4	200	Mag	37.95
MX-2B	2 m	3.4	200	Mag	42.95
MX-440B	70 cm	3.4	200	Mag	63.95
SF-2	2 m	3.4	100	3/8X24	17.95
SF-220	1.25 m	3.4	100	3/8X24	17.95
RX-2	2 m	3.4	100	Mag	28.95
RX-220	1.25 m	3.4	100	Mag	28.95
RX-440	70 cm	5	100	Mag	29.95
CG-144	2 m	5.2	200	3/8X24	39.95
CG-220	1.25 m	5.2	200	3/8X24	39.95
CGT-144	2 m	5.2	200	Trunk	59.95
CGT-220	1.25 m	5.2	200	Trunk	59.95
THF	140-500	Unity	200	Trunk	25.95
UGM	140-500	Unity	25	Mag	23.95



5-BTV

# **MOBILE ANTENNAS / MOUNTS**

## **VHF / UHF Mobile Antennas**

#### **Dual Band**

Dual band models for 144 / 440 MHz give you 2.4 dB / 4 dB gain. The antennas are rated at 100 Watts.

#### LMC-270

- NMO style coil
- · Chrome top
- Coil and whip only

#### MX-270

- Chrome top.
- NMO style magnetic mount.
- 17 ft RG58/U coax.
- PL-259 connector.



Models for 144, 220 and 440 MHz are power rated for 200 Watts. Each has an NMO-style coil and a magnetic mount.

144 MHz 3.4 dB gain MX-2 MX-220 220 MHz 5.0 dB gain MX-440 440 MHz 5.0 dB gain

- Chrome top.
- 10 oz magnet.
- 17 ft RG58/U coax.
- PL-259 connector



MX-2B 144 MHz 3.4 dB MX-440B 440 MHz 5.0 dB Same as above but all black coil.

#### Collinear

Collinear models for 144 MHz and 220 MHz provide 5.2 dB gain. They are power rated for 200 Watts. All have a swivel ball for vertical positioning.

CG-144 6 MHz bandwidth CG-220 4 MHz bandwidth

- · 3/8"x24 thread
- 5/8 over 1/4waye.

CGT-144 6 MHz bandwidth CGT-220 4 MHz bandwidth

- · Trunk mount base.
- 17 ft RG58/U coax.
- · PL-259 connector.

## Unity Gain

An antenna to custom trim as needed for VHF or UHF frequencies. Covers 140-500 MHz.



## Coil and Whip

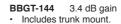
Models for 144 or 440 MHz are power rated for 200 Watts. NMOstyle coil on each requires an NMO mount.

LMG-144 3.4 dB gain

- · Chrome top and bottom.
- · Contact- silver plated push pin.

**BBG-144** 3.4 dB gain

BBG-440-5 5.0 dB gain · Chrome top, swivel ball and spring.



- 17 ft RG58/U coax.
- PI -259 connector



## 5/8 Wave

Base-loaded 5/8 wave models for 144 MHz, 220 MHz and 440 MHz are power rated for 100 Watts.

SF-2 144 MHz 3.4 dB gain SF-220 220 MHz 3.4 dB gain

- 3/8" x 24 thread.
- Mount to any Hustler mount.

**RX-2** 144 MHz 3.4 dB gain **RX-220** 220 MHz 3.4 dB gain **RX-440** 440 MHz 5.0 dB gain

- 3 oz magnetic mount.
- 15 ft RG-58/U coax.
- PL-259 connector.

## **Accessories**



Used to convert RX Series, SF Series, & CG Series to fixed station operation. Contains three radials. Mount can accept any 3/8 x 24 threaded mount. \$28.95



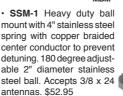
#### QD-2 Quick Disconnect

Remove antennas easily with a push and twist release. Compression design of 100% stainless steel. 3/8 x 24 threads. \$24.95

## **Mobile Mounts**

BM-1

- · BM-1 Bumper mount with stainless steel strap and 1" diameter ball with 3/8 x 24 threads, \$27.95
- · MBM Powerful 5" diameter magnet with 3/8 x 24threads. 16' of RG58U coax with PL-259 connector, \$24.95





· SSM-2 Heavy duty 2" diameter stainless steel ball mount. 180 degree adjustable. Accepts 3/8 x 24 antennas. \$32.95

· SSM-3 Heavy duty stainless steel 4" spring with 3/8 x 24 coupling stud. Copper braided center conductor to prevent detuning. \$29.95

· C-32 Chrome plated 1" ball mount. Accepts 3/8 x 24 antennas. \$22.95

· C-29 Stainless steel 4" spring. Copper braided

center conductor to prevent detuning. Accepts 3/8 x 24 antennas. \$23.95

 C-30 Chrome plated 4" spring. Copper braided center conductor to prevent detuning, \$21.95

RSS-2 Stainless steel 3" spring. Used for mobile antennas between resonator and mast. Copper braided center conductor C-30 to prevent detuning. Accepts 3/8 x 24 antennas. \$14.95

• **HLM** Trunk lip mount designed for hatch and slanted back vehicles. 180 degree 1" diameter ball, which accepts 3/8 x 24 antennas. RG58U coax with PL-259 connector. \$27.95

• HOT Trunk lip mount with easy off/on with thumb knob. 180 degree 1" diameter ball, which accepts 3/8 x 24 antennas. RG58U coax with PL-259 connector. \$29.95

• TLM Trunk lip mount which accepts 3/8 x 24 antennas. RG58U coax with PL-259 connector. \$27.95

· RVM Recreational vehicle mount with heavy duty bracket. Easy antenna removal or lay down with thumb knob. 1" ball accepts 3/8 x 24 antennas. RG58U coax with PL-259 connector. \$23.95



All mounts below are supplied with 17" RG-58U cable.







CTMA

Model	Description HR	O Price
CHMA-B CHMA-P	3/8" Hole mount without connector 3/8" Hole mount w/crimp-on BNC 3/8" Hole mount w/crimp-on PL-259	\$16.95 19.95 15.95
CHMB CHMB-B CHMB-P	3/4" Hole mount without connector 3/4" Hole mount w/crimp-on BNC 3/4" Hole mount w/crimp-on PL-259	19.95 11.95 19.95
CMMA CTMA CTMA-P	NMO 10 oz mag w/solder-on PL-259 Trunk mount without connector Trunk mount w/crimp-on mini UHF	24.95 16.95 24.95

## **Mobile Masts**

#### **Fold-Over Masts MO-1**

Mobile mast 54" high for bumper, fender or hitch o o o o o o o o 15" above base. 3/8 x 24 threaded \$36.95

#### MO-2

Mobile mast 54" high for bumper, fender or hitch mounting. Folds over at 27" above base. 3/8 x 24 threaded \$36.95

## Solid Masts MO-3

Mobile mast 54" high for bumper, fender or hitch mounting. Solid aluminum with white vinyl coating. 3/8 x 24 threaded \$29.95

#### MO-4

Mobile mast 22" high for trunk or deck mounting. Three retuning tip rods included. 3/8 x 24 threaded \$24.95



95

## **Choosing Your Larsen Mobile Antenna**

Choose your antenna configuration based on the frequency, base type (e.g., magnetic mount) and thread type (e.g., NMO). Keep in mind that it is necessary to select a base with the same mounting style as the antenna. Typical bases and styles are shown below.



## **Mount Configurations**

In addition to the popular Motorola 3/4" (NMO) mounts shown here, mobile antennas for the Larsen mount (LM) and PO mount (PO) are excellent choices for amateur use.

Each of these mounts comes in one of the thread types.

#### Mounts:

NMO K premium quality rooftop. NMO MMR mag mount, 80# pull strength.

NMO TLP heavy duty trunk lid.

NMO TMB electropolished trunk gutter

NMO HF for low or high frequencies (pull

center pin and insulator for high frequencies).

NMO HFTHK NMO thick mount (surfaces to 1/2" thick) high or low frequencies.



## **Magnetic Mount BNC MM BNC**

Connectors: BNC on the mag and coax. Coax: RG 58 A/U, 12'







## **NMO Series Antennas**

#### Select an Antenna

Once the base and thread type are selected, the final step is to choose the antenna.

All Larsen mobile antennas meet the industry's most demanding specs for electrical efficiency and mechanical durability.

Gain antennas are made of a coil and a whip. Quarter wave antennas are just a whip.

- · Colors: Black coil base; chrome or all black whip.
- 1-year No-Nonsense Warrantv.™
- Made in USA

## Scanner Antenna

## Tri-Band Antenna NMO-150 / 450 / 800

This is a great antenna for scanner operation. It is NOT tunable for amateur operation.

Frequency150-165 /
450-470 /
806-940 MHz
Gain 2.14 dBi ± 1 dB
MountNMO
Height16.5"
-

Call a Helpful Ham at HRO for **Ouotes** on Larsen Antennas



A NMO 150 B ( Frequency:144-17 Gain:	4 MHz
Electrical: 5/8 Height:	3 Wave

B N	MOQ C
Frequency:	144-448 MHz
Gain:	Unity
Electrical:	1/4 Wave
Height:	22" max.

C NMO 22	0 B (1.25 m)
Frequency:	220-225 MHz
Gain:	3 dB
Electrical:	5/8 Wave
Height:	32"

NMO 2 / 70
Frequency:144-148 MHz
442-448 MHz
Gain:.3.8 dBi VHF5.2 dBi UHF
Electrical:center loaded 1/2
wave VHF
Collinear UHF

Height: ..... 34 3/4"

# **MOBILE ANTENNAS**

# **Dual-Band Antennas**

Larsen dual band antennas provide excellent performance on 2 m and 70 cm. Each antenna is factory preset to guarantee optimal performance with no tuning required.

- Arange of dual band configurations is available.
- Kulrod copper-plated 17-7 stainless steel rods for greater transmit range.



<b>B</b>	NMO 2 / 70 SH
Freq	uency: 144-148/440-450 MHz
Gain	:Unity
	er:100 Watts
Type	:VHF: Center load 1/4 wave
	UHF: Center load 3/4 wave
Base	: . NMO UHF base B w/spring
Heig	ht:17"

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## **On-Glass Antennas**

Larsen's advanced design techniques in glass-mount antennas result in superior transmit range plus tremendous mechanical durability. Glass mount performance is nearly identical

to rooftop mounts, with no holes to drill. Properly installed on-glass antennas grip for years under demanding conditions, yet are

easy to remove

and remount.

Dual

**Band** 

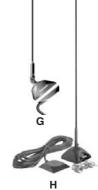
The KG 2 / 70

is a VHF halfwave and a

UHF collinear.

It comes with

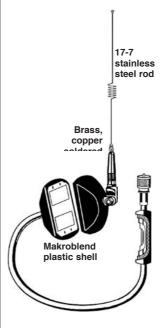
14 feet of RG-58/U coax.



The antenna installs easily on any flat surface. Remove the whip without tools for car washes or low garages. **HRO Price \$119.95** 

# G KG 2/70-CX-PL (Dual) Frequency:144-148/442-448 MHz Gain:.........2.4 dB VHF; 4.5 UHF Power:........50 Watts Type:........1/2 wave / Collinear Connector:........PL 259 (loose) Height:.......32-3/4"

- Patented low-impedance design is electrically efficient
- Single-band antennas are precut, 1/2 wave design.
- Transformer outside vehicle.
- · Copper plated whips.
- Rated 50 Watts output.
- Less than .5 dB loss through glass vs. rooftop.
- New circuit board technology locks in solid state performance.
- 3M's best on-glass adhesive grip.
- Made in USA with1 year No-Nonsense Warranty™



## Single Band

<b>H</b> KG 14	
Frequency:	144-160 MHz
Gain:	2.4 dB
Type:	1/2 Wave
Connector:	PL 259 (loose)
Height:	45 <sup>"</sup>

## **Rubber Ducks**

## **KulDuckies**

KulDuckies have outstanding transmit range with 1.5:1 VSWR. Made of copper and brass radiators, they are scope tuned to precise frequencies. Constructed with soldered connections, plastisol dip process, injection-molded housings and silver plated contacts.

KulDuckies are available in Helical (VHF, UHF), HQ Helical (VHF), Dual Band, and Half Wave.



HELICAL DUAL HW (VHF, BAND (UHF)

#### Dual Band KD4 2 / 70

Amateur dual band KD antenna, BNC connector. **HRO Price \$39.95** 

#### Helical KD4 FREQ HQ

Helical 1/4 wave 136-222 MHz (specify frequency), 9 1/2" tall, BNC connector. **HRO Price \$25.95** 

#### **KD4 VHF**

VHF helical 136-222 MHz (specify frequency), 8" tall, BNC connector. HRO Price \$19.95

#### **KD4 UHF**

UHF helical 406-512 MHz (specify frequency), 3" tall, BNC connector. **HRO Price \$19.95** 

Free UPS Brown Shipping in the Continental U.S. on Most Orders Over \$100.

## **MOBILE ANTENNAS**

## **HF Whip Antenna**



## SG-303 Up to 500 Watts

HRO Price \$CALL

SGC's 9-foot helically wound whip antenna comes in two sections and provides full HF coverage when used with a Smartuner or other antenna coupler. Covers 1.8-30 MHz, up to 500 W. Available with SGC's mobile swivel ratchet mount. Cat. # 55-75.

## **VHF / UHF Mobile**



#### MFJ-1724B

Mobile magnetic mount dual band antenna gives you a quarter wave stainless steel whip for 2 meters and 70 cm, coax, and connector. Low SWR, 200 Watts.

#### MFJ-1729

Mobile Magnetic Mount super gain dual band antenna. Get a whopping 2.6 dB gain on 2 meters and 6.3 dB gain on 70 cm.

#### MFJ-1432

Dual band, 62.5" RuffRider™ hyper gain mobile antenna. 7.6 dB gain on 70 cm, 5 dB gain on 2 m. Requires trimagnet mount, not included.

## 2 m + 6 m Mobile

#### MFJ-1728B

Mobile magnetic mount 5/8 wave 2 meter and 1/4 wave 6 meter antenna. Low SWR, 300 Watts.

## **On-Glass Dual Band**

#### MFJ-1734

Dual band glass mount 144 / 70 cm antenna gives 2.6 dB gain on 2 meters and 6.3 dB gain on 70 cm. Low SWR on both bands.

### MFJ-1738

2 meter glass-mount antenna handles 50 Watts with 2.6 dB gain, low SWR over entire 2 meter band.

## On-Glass 2 m



## Single Band 1/2-Wave

Larsen's full selection of on-glass antennas for singleband and dual band use are described on page 97. All single band antennas are precut. A single 1/2 wave design provides 2.4 dB gain.

KG-144-UDPL 2 M HRO Price \$84.95

Find more on-glass antennas on page 97.

## 2 m / 70 cm Mobiles



#### Dual Band Antennas for 2m / 70 cm

 Model
 MaxPwr
 Gain
 Lgth
 Conn
 Finish

 EX-107RB
 80 W
 2.6 / 4.9
 29"
 PL-259
 Black

 EX-107RBNMO
 80 W
 2.6 / 4.9
 29"
 NMO
 Black



#### Dual Band Antenna for 2 m / 70 cm Model NMO 2 / 70 Black

	Freq		Weight	HRO
Band	MHz	Gain	oz	Price
2 m	144-148	3.8 dBi	3.9	\$69.95
70 cm 5/8 collinear	440-450	5.2 dBi		

# Austin

## **Dual-Band Mobile Antennas**

Model	Band	Freq MHz	Gain	Weight oz	HRO Price
500C	2 m	144-148	Unity	6	\$45.95
	70 cm	440-450			
Metropolitan	2 m	144-148	Unity	6	\$58.95
	1.25 m	220-225			
	70 cm	440-450			

Find more dual-band antennas:



DIAMOND ANTENNA

See Page 91-92

See Page 100

## **Duplexers**

When using a single antenna with mobile radios that have separate 144 MHz and 440 MHz outputs, you must use a duplexer.

**Comet** has a wide variety of duplexers & triplexers with gold-plated connectors, high isolation and the highest power handling abilities. See page 92.

**Diamond** has a wide collection of duplexers and triplexers for coupling antennas and transceivers. See page 100.

# **Tarheel Antennas**



## Little Tarheel II

3.5 – 54 MHz Mobile HRO Price \$CALL

When properly installed on your vehicle the Little Tar-

heel II will provide continuous coverage from 3.5 to 54 MHz with the supplied whip. Like all of our motorized antennas, this model meets the highest standards but in a smaller size.

It comes with sensors pre-installed so if you decide to add one of the auto controllers (SDC-100 Simple Controller, SDC-102 Programmable Controller, Turbo Tuner, Antenna BOSS and BOSS II) now or later, everything is ready.

This antenna is for the person who wants to enjoy HF mobile with a more compact antenna. Don't let the small size fool you. The Little Tarheel II mounts higher on the vehicle so you have less ground loss and higher performance. Because of its smaller size, this antenna offers the convenience of a more common type of mount like the Diamond K400 Series, the Comet Series, or similar 3/8" stud type mount.

The Little Tarheel II comes as a package. All you need is a mount and a nice HF radio. Included standard with the antenna is: the whip, 20 feet of plug and play control cable, manual control box, ferrite decoupling core and 3/8 x 24 stud.

The antenna is finished with our Dupont Imron 5000 system in standard colors of black, white, red or silver. It also comes with the tough Lexan™ Weather Shield like its big brothers. This model also uses the commercial 12 volt gear motor.

The antenna has a ONE YEAR NO MATTER WHAT WARRANTY to the original owner.

#### Specfications:

- · Lower mast size: 1 1/2". Weight: 1.9 lbs.
- · Lower mast length: 16".
- · Whip length: 32".
- Total length of antenna in 54 MHz position: 48".
- Total length of antenna in 3.5 MHz position: 54"
- Frequency coverage continuous: 3.5 54 MHz
- · Power rating: 200 Watts P.E.P.
- Typical SWR: 1.5 or less.

**HRO Price \$CALL** 

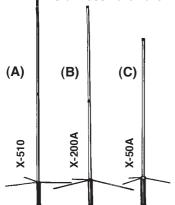


# The Standard by Which All Others are Judged

## **Diamond Base Antennas**

All base antennas grounded for lightning protection. Factory adjusted for American amateur bands; no tuning required.

- Wide-band performance
- · Highest gain
- · Fiberglass radome
- Factory adjusted
- DC grounded
- UPS shippableHigh wind rating
- · Stainless hardware



- 52-54 MHz only. DPGH62 is adjustable from 50-54 MHz.
- 2. 15-148 MHz, 100 Watts on 2 m, 200 Watts on 1-1/4 m & 70 cm.
- 3. 28/50 MHz 400 W PEP, 14/21 MHz 400 W PEP, 7 MHz 200 W PEP.

Model	Bands	Gain, dB	Watts	Con. Type	WT (lbs)	Lth (ft)	MPH (no ice)	Fig	HRO Price
A502HB	6m Yag 2 elem.	6.3 dBi	400PEP	UHF	3.75	2.6			\$89.95
A144S5	2 m Yagi 5 elem.	6.0 dBi	100PEP	UHF	1.4	3.1			\$59.95
A430S10	70cm Yagi 10 elem.	13 dBi	100PEP	UHF	1.4	3.6			\$69.95
A430S15	70cm Yagi 15 elem.	14.8 dBi	100PEP	UHF	2.15	7.4			\$89.95
CP-22E	2 m	6.5	200	UHF	3	9	90	В	\$54.95
CP-5HS <sup>3</sup>	40/20/15/10/6 m		200v	UHF	6.6	11.8	80		\$379.95
CP-62	6m	5.5 dBi	200	UHF	9	22	80		\$199.95
CP-610	10m/6m	5.5/3.4 dbi	200	UHF	9	22	80		\$229.95
F-22A	2 m	6.7	200	UHF	5	10.5	112	В	\$94.95
F-23H	144-174 tunable	7.8	350	UHF	5	15	90	Α	\$139.95
F-718	70 cm	11.5	250	N	5	15	90	Α	\$199.95
MG-200	2.4 GHz	11		N	3	6	135	С	\$59.95
V2000A 1	6m / 2m / 70cm	2.1 / 6.2 / 8.4	150	UHF	4	8.3	110	В	\$159.95
X-30A	2 m / 70 cm	3.0 / 5.5	150	UHF	2	4.5	135		\$69.95
X-50A	2 m / 70 cm	4.5 / 7.2	200	UHF	3	5.6	135	С	\$94.95
X-50NA	2 m / 70 cm	4.5 / 7.2	200	N	3	5.6	135	С	\$94.95
X-200A	2 m / 70 cm	6.0 / 8.0	200	UHF	4	8.3	112	В	\$124.95
X-300A	2 m / 70 cm	6.5 / 9.0	200	UHF	4	10	112		\$139.95
X-300NA	2 m / 70 cm	6.5 / 9.0	200	N	4	10	112	В	\$139.95
X-510HDM	2 m / 70 cm	8.3 / 11.7	330/250	UHF	5	17.2	90	Α	\$179.95
X-510HDN	2 m / 70 cm	8.3 / 11.7	330/250	N	5	17.2	90	Α	\$179.95
X-510NJ	144/430	8.3 / 11.7	200	N	5	17.2	90	Α	\$199.95
X-3200A <sup>2</sup>	2m/1-1/4m/70cm	6.0 / 7.8 / 8.0	100@	UHF	4	10	112	В	\$179.95
X-6000A	2m / 70 / 23cm	6.5 / 9.0 / 10.0	100	Ν	5	10	112	В	\$169.95
BB7V	2-30 MHz		250	UHF	6	5/22	80		\$369.95
CP6AR	75/40/15/10/6 m		200	UHF	9.9	15.1	80		\$419.95
CP-725H	40 / 15 / 10 / 6 m		500-200	UHF	6.6	11.7	100		\$359.95

## **Diamond Handheld and Receiving Antennas**

Model	Description	<b>HRO Price</b>		
D-130J	Wideband discone 25-1500 MHz. 20 W transmit 50-1300MHz. 100 W 144-3000 MHz No cable.			
D-130NJ	Wideband discone 25-1500 MHz. 20 W transmit 50-1300 MHz. 100 W 144-1300 MHz, No cable, Type-N	\$95.95		
D-3000N	Wideband discone RX 25-3000MHz, TX 50-1300MHz 20 W 50 MHz, 20 W transmit 50 MHz. 100 W 144-1300 MHz, 67" tall, Type N	\$129.95		
RH-3	2m / 70cm dual-band HT antenna. 1.75" BNC. 120-900 MHz receive.	\$26.95		
RH-77CA	High gain 2m / 70cm dual-band HT antenna. Receive range to 900 MHz. BNC.	\$22.95		
RHF-10	144/440. Air Band 6W, Rec Only 150/300/450/800/900MHz,BNC	\$21.95		
RHF-40	Super flexible version of Model RH-77CA	\$27.95		
SRHF-40	Super flexible 15" tail SMA 144 / 440MHz HT antenna	\$26.95		
RH-205	2m HT antenna, telescopic, 5/8 fully extended, 47.5"; 1/4 retracted, 9".	\$26.95		
RH-519	2m / 70cm slim dual-band HT antenna. Flexible. 8" BNC, 10 watts.	\$24.95		
RH-707	2m / 70cm dual-band, tiltable whip HT antenna. 8-1/4" BNC.	\$29.95		
RH-951S	High gain 2m / 70 cm / 23 cm slim tri-band HT antenna. Flexible. BNC (Wide band receive)	\$44.95		
SRHF10	Ht Antenna, 144/440MHz. Air Band 6W, SMA, Rec Only 150/300/450/800/900MHz	\$21.95		
SRJF-10	144/440 MHz, Air Band 150/300/450/800/900 MHz(Rec. Only), 2.75", 6W, SMA(F) 1/4 wave length	\$21.95		
SRH-519	2m / 70cm slim dual-band HT antenna. Flexible. 8" SMA, 10 watts.	\$26.95		
SRH-77CA	High gain 2m/70cm dual-band flexible HT antenna, SMA	\$22.95		
SRJ-77CA	Same as SRH-77CA for Wouxun, SMA	\$24.95		
SRH-229	For Alinco DJ-G29T. High gain, flexible whip, 13", 220-900 MHz, 10W, 4dB, SMA	\$32.95		
SRH-320A	2m/1-1/4m/70cm tri-band HT antenna. Flexible. SMA. 10 watts	\$46.95		
SRH-789	Telescoping handheld antenna 95-1100 MHz, 6 sections, folds at base	\$32.95		
RH-789	Same as SRH-789 but BNC connector	\$32.95		
SRH-805	2m / 70cm / 23cm tri-band HT antenna. 1.75" SMA, 10 watts.	\$26.95		
SRH-815	2m / 70cm / 23cm tri-band HT antenna. Flexible. 6" SMA, 6 watts.	\$31.95		
SRH-940	6m /2m /440 MHz SMA HT antenna	\$39.95		
SRH-999	6m /2m / 70cm / 23cm quad-band HT antenna. Flexible. 21 1/4" SMA, 10 watts.	\$54.95		

## **Specialty Antennas**

#### High Power 2 m / 70 cm Mobile

Dual-band mobile antenna. 300 Watts (2 m) and 250 Watts (70 cm). Use K400 and K600 series mounts. NR7900A HRO Price \$84.95

#### **Quad Band FM**

10 m / 6 m / 2 m / 70 cm quad FM band antenna for FT8900R radio or multi radio applications. Use K400 and K600 series mounts. **CR8900A HRO Price \$99.95** 

#### 2m / 70cm Mobile

Ideal antenna for increased performance of HT radio or where a compact antenna is required. Magnetic mount base. 1/4 wave (2 m) and 1/2 wave (70 cm), black finish. Available in UHF or SMA cable configuration.

MR77 / MR77SMA HRO Price \$37.95

2 m / 70 cm Mobile NR-770HRKS HRO Price \$109.95

2 m / 70 cm Mobile CR270A HRO Price \$42.95



VR7900A • 57"

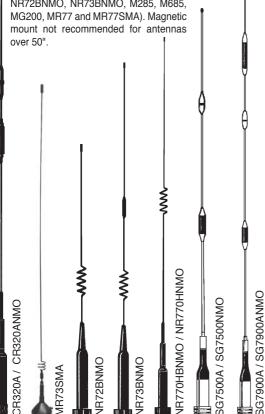
CR8900A • 50'

## DIAMOND ANTENNA

# **ANTENNAS & DUPLEXERS**

## **Diamond Mobile Antennas**

Factory adjusted for American amateur bands, no tuning required unless specified. Mobile antennas have fold-over feature with spring loaded hinge (except NR72BNMO, NR73BNMO, M285, M685,



Model	Bands	Gain/dB	Watts	Mount	Lth/in	HRO Price
AZ504SP	2m/70cm	2.15 dBi	50	UHF	15.5	\$39.95
AZ504FXH	2m/70cm	2.15 dBi	50	UHF	15.5	\$39.95
AZ507RSP	2m/70cm	2.15(2m) 4.9(70cm)	50	UHF	27.5	\$46.95
CR-270A	2 m/70 cm	2.15 dBi	50	UHF	17.3	\$42.95
CR320A #.4.6	2 m/1 -1/4 m/70cm	2.1/3.8/5.5	100	UHF	36	\$79.95
CR320ANMO #.4.6	2 m/1 -1/4 m/70cm	2.1/3.8/5.5	100	NMO	36	\$79.95
CR627B #,4,5	6m/2m/70cm	2.1/4.5/7.2	150	UHF	60	\$84.95
CR627BNMO #,4,5	6m/2m/70cm	2.1/4.5/7.2	150	NMO	60	\$84.95
CR8900A 4,7(FM Only)	10m/6m/2m/70cm	2.15(2m) 5.5(70cm)	60	UHF	50	\$99.95
D220 discone	100-1600 MHz	2	50	PL-259	35.5	\$109.95
MG200 <sup>7</sup>	2.4 GHz	7	-	N	23.6	\$59.95
HF6FX 4,7	6 m	2.15	250	UHF	44	\$69.95
HF50CX 4,7	6 m	3.5	200	UHF	71	\$99.95
M285 4,8	2 m	3.4	200	UHF	52.4	\$31.95
M285SNMO 4,8	2 m	3.4	200	NMO	52.4	\$31.95
MR73S Mag Mt	2m/70cm	2.15/3.4	10	SMA	20	\$26.95
MR73SJ Mag Mt	2m/70cm	2/3.4	10	SMA	20	\$26.95
MR75S Mag Mt	2 m/70 cm	2.15/3.4	35	SMA	20	\$36.95
MR75SJ Mag Mt	2 m/70 cm	2/2.4	35	SMA	20	\$36.95
MR77 #.7	2 m/70 cm	2.15/3.4	70	†	20	\$37.95
MR77SMA #,7	2m/70cm	2.15/3.4	70	&	20	\$37.95
MR77SJ Mag Mt	2m/70cm	2.15/3.4	70	SMA	20	\$37.95
M685S 4,7	6 m	2.15	200	UHF	52.4	\$31.95
M685SNMO 4,7	6 m	2.15 dBi	200	NMO	52.4	\$31.95
NR124	23 cm	8.4	100	Type N	25	\$49.95
NR124NMO	23 cm	8.4	100	NMO	25	\$54.95
NR140BNMO	220 MHz	4	159	NMO	36.2	\$46.95
NR22L <sup>4</sup>	2 m	6.5	100	UHF	96.8	\$64.95
NR2000NA	2 m/70 cm/23 cm	3.15/6.3/9.7	100	N	39	\$84.95
NR-72BNMO *.4.7	2 m/70 cm	2.1/2.1	100	NMO	14	\$39.95
NR-73BNMO "	2 m/70 cm	2.1/5.3	100	NMO	33	\$54.95
NR-770HA	2 m/70 cm	3.0/5.5	200	UHF	40	\$48.95
NR-770HNMO	2 m/70 cm	3.0/5.5	200	NMO	41	\$53.95
NR-770HB *	2 m/70 cm	3.0/5.5	200	UHF	40	\$53.95
NR-770HBNMO #	2 m/70 cm	3.0/5.5	200	NMO	41	\$53.95
NR-770HRKS <sup>9</sup>	2 m/70 cm	3.0/5.5	200	UHF	40.2	\$109.95
NR-7900 <sup>4</sup>	2 m/70 cm	3.7/6.4	300/250	UHF	57	\$84.95
SD330 screwdriver	3-30 MHz		200	UHF	73	\$389.95
SG7000A 4.7	2 m/70 cm	2.1/3.8	100	UHF	18	\$69.95
SG7500A	2 m/70 cm	3.5/6.0	150	UHF	41	\$69.95
SG7500NMO	2 m/70 cm	3.5/6.0	150	NMO	42	\$72.95
SG7900A 4	2 m/70 cm	5.0/7.6	150	UHF	60	\$99.95
SG7900A/NMO 4	2 m/70 cm	5.0/7.6	150	NMO	62	\$114.95

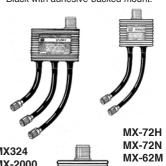
## **Diamond Duplexers and Triplexers**

Model	Port	Freq MHz	CW Watts	PEP Watts	Loss dB	Isol. dB	MIX Conn.	Port Conn.	HRO Price
MX-37	LPF HPF	1.6 - 470 900 - 1300		100 50	.25 .45	45 45	N-Jack(F)	PL-259/12" cable N-Male /12" cable	\$59.95
MX-62M	LPF HPF	1.6 - 56 76 - 470		200 200	.2 .2	50 50	SO-239	PL-259/12" cable PL-259/12" cable	\$69.95
MX-72D			Simila	r to MX-	72H, bu	t Direc	t Connection		\$46.95
MX-72H	LPF HPF	1.6-30 140-150 400-460	400 150 100	400 150 100	.1 .1 .2	60 60 60	SO-239	PL-259/12" cable PL-259/12" cable	\$49.95
MX-72N			Similar	to MX-7	2H, but	type-N	on UHF por	t	\$49.95
MX-72A	Similar to MX-72N, but type-N on MIX Conn.						\$54.95		
MX-214	LPF HPF	140-150 220 - 225		300 200	.3 .4	40 40	SO-239	PL-259/12" cable PL-259/12" cable	\$65.95
MX-324	LPF BPF HPF	1.6-60 220-225 400-550		800 600 500	.3 .4 .4	40 40 40	SO-239	PL-259/12" cable PL-259/12" cable PL-259/12" cable	\$89.95
MX-610	LPF HPF	1.3 - 30 49 - 470		600 500	.2 .25	45 45	SO-239	PL-259/12" cable PL-259/12" cable	\$69.95
MX-2000	LPF BPF HPF	1.6-60 110-170 300-950		800 800 500	.15 .20 .25	60 60 60	SO-239	PL-259/12" cable PL-259/12" cable PL-259/12" cable	\$83.95
MX-3000	LPF BPF HPF	1.6-160 350-500 850-1300		800 400 200	.15 .25 .30	55 55 55	N-Jack(F)	PL-259/12" cable PL-259/12" cable N-male/12" cable	\$79.95
MX-3000N		Similar	to MX30	000, but v	with Typ	e-N m	ale on BPF c	onnection	\$85.95

- Black anodized finish.
- † Mag mount with 13' RG58 cable w/UHF. & Mag Mt w/13' RG58 cable w/SMA.
- 4 Magnetic mounts not recommended. Vehicle ground required.

  5 52-54 MHz only.

  6 100 Watts on 1-1/4 m; 200 Watts on 2 m
- and 70 cm.
- Gain Rated in dBi.
- Tunable from 144-174 MHz.
- 9 Black with adhesive-backed mount.



MX324 MX-2000 MX-3000 MX-3000N



MX-610

MX-72D

# **ACCESSORIES & MOUNTS**

## **Special Trunk Mount**

for 3/8 x 24 thread antennas K400-3/8C HRO Price \$73.95

Here's the ideal mounting system for Outbacker Perth, OB Jr., and other medium weight antennas. A spring is recommended for stiff or heavy antennas.

Power: 350 Watts RMS
Cable: 6 1/2' RG316
Teflon® coax
Connector: PL-259
Adjustment: 2 axis

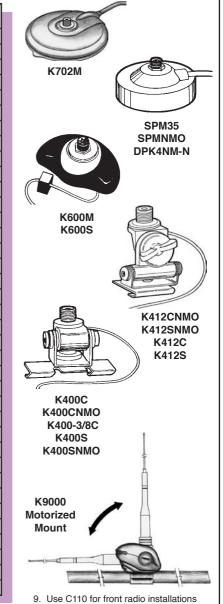
Note: Use C110, 10- foot
extension for front radio installation.
\$19.95

## **Diamond Accessories**

Model	Description	HRO Price			
SP-1000	Lightning Protector DC-1000 MHz, Max Power 400 W PEP, SO-239, VSWR <1.2	\$29.95			
SP-1000PW	Lightning Protector DC-1000 MHz, Max Power 400 W PEP, SO-239(F), SO-239(M), VSWR <1.2				
SP-3000P	Lightning Protector DC-3000 MHz, Max Power 400 W PEP, Type-N(F), Type-N(M), VSWR <1.2 Waterproof	\$41.95			
SP-3000W	Lightning Protector DC-3000 MHz, Max Power 200 W PEP, Type-N, VSWR <1.2 Waterproof	\$41.95			
MGC-50	Window feedthru assembly, HF-50 MHz 50 W, 2 m 40 W, 440 MHz 30 W, 1200 Hz 10 W, SO-239	\$53.95			
CX-210A	Heavy duty wideband coax switch, DC-1000 MHz. 1.5 kW, UHF(F) to UHF(M) Waterproof	\$49.95			
CX-210N	Heavy duty wideband coax switch, DC-1500 MHz. 1.5 kW, N connector.	\$79.95			
CX-310A	Heavy duty 3 position coax switch, wideband. DC-800 MHz. SO-239 connectors.	\$89.95			
DL-30A	Dummy load. DC-500 MHz, 15 W RMS (max)/100 W peak. PL-259 connector.	\$39.95			
DL-30N	Dummy load. DC-1500 MHz, 15 W RMS (max)/100 W peak. Type N connector.	\$54.95			
D38-24	UHF to 3/8-24 Adapter	\$19.95			
SS-770R	Phasing Harness, 114 MHz, 430 MHz, Input SO-239, Output x2 PL-259	\$74.95			

## **Mobile Mounts**

Model	Description	HRO Price
C101	UHF base 6.5' RG316 Teflon coax w/PL259	\$37.95
C101NMO	NMO base 6.5' RG316 Teflon coax w/PL259	\$37.95
C101-3/8C	Replacement cable only for K400-3/8C	\$34.95
C101-3/8C Kit	Replacement cable and hardware for K400-3/8C	\$44.95
C104SMA	4' RG58/U Extension cable for PL-259. 90 degree SMA Male & SO-239	\$16.95
C105SMA	5' RG58/U Extension cable for C101/C101NMO. 90 degree SMA Male	\$16.95
C110BNC	10' RG316 extension cable for C101/C101NMO. Use front radio installations. BNC male	\$29.95
C110SMA	10' RG316 extension cable for C101/C101NMO. Use front radio installations. SMA male	\$29.95
C110	10' mini-8/RG8X extension cable for C101/C101NMO. Use front radio installations.	\$19.95
C211	Combination of C101 and C110. 16.5 feet cable assembly	\$49.95
C213S	UHF base, 13.5' RG316 Teflon Coax with PL-259	\$44.95
C213SNMO	NMO base, 13.5' RG316 Teflon Coax with PL-259	\$45.95
CRM	Stainless steel right angle mount with U-bolt	\$16.95
DPK-4NM-N	Type N Magnet. 13' 5mm coax w/Type-N plug. Good to 1300 MHz.	\$54.95
HRKS	Adhesive backed UHF mount, 13.5' RG316 teflon coax with SMA and PL-259 adapter	\$69.95
K400-3/8C °	Special mount for 3/8X24 thread Antenna. 6.5 feet RG316 w/PL-259	\$73.95
K400C °	Deluxe mount with UHF type base. 6.5 feet RG-316 Teflon coax w/PL-259	\$73.95
K400CNMO <sup>9</sup>	Deluxe mount with NMO type base. 6.5 feet RG316 Teflon coax w/PL-259	\$73.95
K400S	Deluxe mount with UHF type base. 13.5 feet RG316 w/SMA (PL259 adapter included)	\$79.95
K400SNMO	Deluxe mount with NMO type base. 13.5 feet RG316 w/SMA (PL259 adapter included)	\$79.95
K412C	Trunk/hatchback mount. UHF base, 6.5'Teflon coax w/PL-259. 45" max ant	\$59.95
K412CNMO	Trunk/hatchback mount. NMO base, 6.5 Teflon coax w/PL-259. 45" max ant	\$59.95
K412S	Trunk / hatchback mt. UHF base, 13.5' RG316 coax w/SMA. (PL259 adapter included)	\$69.95
K412SNMO	Trunk / hatchback mt. NMO base, 13.5' RG316 coax w/SMA. (PL259 adapter included)	\$69.95
K515S	Deluxe luggage carrier mt. UHF base.13.5 feet RG316 w/SMA(PL259 adapter included)	\$69.95
K515SNMO	Deluxe luggage carrier mt. NMO base.13.5 feet RG316 w/SMA (PL259 adapter included)	\$69.95
K540KM	Deluxe Mirror/Luggage rack mount. Black, adjustable. 13' RG58C/U w PL259	\$59.95
K550KM	Deluxe mini van luggage rack mount. Black, adjustable. 13' RG58C/U w PL259	\$69.95
K550L	Oversize version of K550	\$46.95
K600M	Tilt angle (0-9 degrees) trunk mount. Black. RG-188 and low loss 7 mm cable.	\$59.95
K600S	Tilt angle (0-9 degrees) trunk mt UHF base. 13.5 feet RG316 w/SMA (PL259 adapter inc.)	\$62.95
K702M	Deluxe low-profile magnet/suction mount. 6.5" diameter, 13' RG58 & PL-259	\$49.95
K9000LRM	Motorized mount for luggage rack. Use C-series cable assemblies	\$104.95
K9000LRMO	Same with oversize K515 hardware	\$109.95
K9000TM	Motorized mount for trunk lid. Use C-series cable assemblies	\$104.95
SPM35	UHF type base on heavy 1.5 lb/4" magnetic, 13' 5mm coax with PL-259.	\$44.95
SPMNMO	NMO type base on heavy 1.5 lb/4" magnet, 13' 5mm coax with PL-259	\$49.95



## **HF/HT ANTENNAS**

# **ROTATORS**

## DIAMOND ANTENNA

## **HV7A Mobile Antenna System**

For New HF / VHF Tranceivers (such as: IC706, IC7000, FT100, FT857, FT897 and the FT8900R)

The HV7A has 5 band capability: 70 cm, 2 m, 6 m and 2 HF bands through use of loading coils. Fold-over feature allows for easy access into low overhead buildings.

Bands Supplied: Opt. Loading Coils: Power, P.E.P.: Mount Connection: Length: SWR:

10 m / 6 m / 2 m / 70 cm 40 m / 20 m / 17 m / 15 m HF 120 W / VHF 200 W UHF

54" (HV7A) 1.5:1 nominal

**HV7A Price:** 

\$109.95 Shown with optional mount, car and radio Optimal use when VHF/UHF have separate outputs

HF/6m

MX62M **Duplexer** \$69.95

Specifications:

• HF / 6 m, 2 m, 70 cm duplexer.

- 1.6-56 MHz LPF • 76-470 MHz HPF
- (76-120 receive only)
- 600 P.E.P. Watts:

.2 dB LPF · Loss: .3 dB HPF

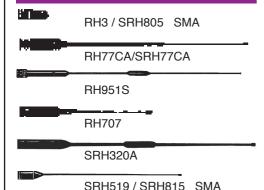
· Isolation: 50 dB

Use with HF/ VHF mobile transceivers such as the IC-706 series, FT-100 or combine 2 m and HF rigs.

## Optional Loading Coils

HVC14 20 m \$37.95 HVC18 \$37.95 17 m HVC21 15 m \$37.95

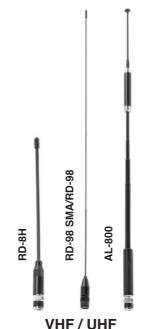
## **Antennas for Handhelds**



## **Antennas** for Handhelds

# PRYME<sup>®</sup> Radio Products

## **Duckies & Telescoping Antennas**



## **Dualband Antennas**

#### RD-8H

144 MHz / 440 MHz. flexible 6.5" tall HT antenna, gold plated BNC connector. HRO Price \$17.95

#### RD-98

144 MHz / 440 MHz, 17" tall, 1/16" diameter HT antenna, BNC connector. **HRO Price \$24.95** 

#### RD-98 SMA

144 MHz / 440 MHz. 17" tall. 1/16" diameter HT antenna, SMA connector. **HRO Price \$27.95** 

#### AL-800

144 MHz / 440 MHz, telescoping antenna, extends to 34", collapses to 10". Whip replaceable with 9" rat tail (included), 3.2/5.5 dB gain, gold plated BNC connector. HRO Price \$34.95

**Call for Ouotes** 

Hy-gain rotators are the first choice of hams around the world! One is perfect for your antenna configuration.

#### Ham - IV

The popular Ham-IV is designed for medium antenna arrays up to 15 square feet. It features a dual 98 ball bearing race for load bearing strengths and an electric locking steel wedge brake. Maximum mast size 2 1/16". HRO Price \$599.95

Tailtwister Series II

This unit handles medium communications arrays up to 20 square feet wind load area. Available with the DCU-1 Pathfinder digital control box or standard analog control box. Has 138 ball bearings for large load bearing strength. Maximum mast size 2 1/16".

**HRO Prices:** T2X \$719.95, T2XD \$1229.95

#### Ham - V

For medium an-

tenna arrays upto 15 square feet wind load. Includes the DCU-1 Pathfinder digital control unit. No more terminal strips. Features cinch connector plus 8-pin plug at the control box. Maximum mast size 2 1/16". HRO Price \$949.95

#### HDR-300A

Choose this rotator for king-sized antenna arrays up to 25 square feet of wind load. Heavy-duty selfcentering steel mast clamp and hardware. Digital display accurate to 1 degree. HRO Price \$1349.95

#### AR-40

Especially for large FM-TV and compact communication antenna arrays up to 3.0 square feet wind load area. Dual 12 ball bearing race. Automatic position sensor never needs resetting. Maximum mast size 2 1/16". Includes MSLD light duty lower mast support. HRO Price \$319.95

#### CD-45II

The CD-45II handles up to 8.5 square feet of antenna wind load when mounted inside the tower or 5 square feet with the included MSLD light duty lower mast adapter. Has 58 ball bearing race. Maximum mast size 2 1/16". HRO Price \$429.95

#### DCU-1 Pathfinder

Adigital control unit for the T2X. Ham-

IV and Ham -V rotators. HRO Price \$749.95





# **ROTATORS**

#### The radio



## G-800SA / G-800DXA

The G-800 rotator series is designed for medium to heavy loads and antennas up to 20 square feet. The G-800DXA is the same as the G-800SA with the addition of presets.



# Rotator Computer Controller GS-232B

The GS-232G rotator computer interface provides digital control of Yaesu rotators G-800DXA, G-1000DXA, G-2800DXA, and G-5500.

The GS-232B contains its own PIC18C452 microprocessor with ROM and RAM and 10-bit analog-to-digital converter. The 3 wire async serial line can be configured for serial data rates from 1200 to 9600 baud. The unit has a DB-9 male connector for to connection to the RS232C COM port of your computer.

Supplied items include: control cable for the azimuth rotator (5 in to mini DIN), control cable for the Az/El rotator (dual 5 pin to DIN cable), DC power cable, and hook and loop fasteners. This device requires 12 VDC at 110 mA.

Yaesu's high quality rotators for amateurs include models for medium to large arrays and for satellite work. There are also provisions for computer control. Contact your nearest HRO for more specifications and discount prices on Yaesu products.

## G-1000DXA

The G-1000DXA is designed to handle bigger arrays up to 22 square feet. A great value.

## G-450A

The G-450A is ideal for smaller HF and VHF/UHF antennas. Features 360 degree radial compass display with overlap.



for satellite, moon-bounce or other space communications work. It provides horizontal and vertical antenna rotation in a single unit. The control box has two large meters, one showing elevation and the other azimuth. Meter aiming accuracy is within ±4%. The G-5500 provides 180° elevation rotation with a rotation time of 67 seconds. A 360° azimuth rotation takes just 50 seconds. This rotator accepts up to a 2.5" mast, a maximum 1-5/8" horizontal cross-boom and 440 pounds of vertical load. Computer controllable with optional GS-232 computer interface. **HRO Price \$CALL** 

#### G-550

This is an elevation rotator for satellite work. The control box shows elevation in degrees. **HRO Price \$CALL** 



## Orion Rotator OR-2800PX

The Orion OR-2800PX is engineered for long life, reliability and performance while turning large antennas or systems. It has a strong ductile iron mast clamp to support up to 3-1/8" masts (optional long bolts required), extended and hardened drive shaft, and prop-pitch style torque plate. The rotator housing fits inside most popular towers and mates to standard tower / rotator plates.

The RC-2800PX Control Box has digital readout, variable speed control, slow start, and reverse delay, programmability, preset, 2 rotator capacity, coast-down, true AZ readout-continuous and infinite limit position control. The USA-made OR-2800PX has a one year warranty. **HRO Price \$CALL** 

Wind Area Capacity	35 sq. ft.
Starting Torque	4200 in. lbs.
Rotating Torque	3200 in. lbs.
Breaking Torque	17000 in. lbs
Vert. Load Capacity	1800 lbs.
Mast Size (O.D.)	1.75-3-1/8"
Rotation Speed (360)	55-120 sec.
Readout Accuracy	1 degree
Input Voltage	110/220 AC
	50/60 Hz
Motor Voltage	28-42 VDC
Cable Type	8 conductor
Weight (Rotator unit)	42 lbs.

## **Rotator Specifications**

	Model	Input Voltage	Motor Voltage	Rotation Time	Stationary Torque	Rotation Torque	Maximum Windload	Max. Vert Load	Max. Mast Size	Cable Type	Weight lbs (kg)	HRO Price
M2	OR-2800PX	110/220 VAC	28 VDC	55 sec	17,000 in lbs	3200 in lbs	35 sq ft	1800 lbs	3-1/8 in	8-wire	42 (19)	CALL
Yaesu	G-450A	110 VAC	24 VDC	51 sec	217 ft lbs	39.8 ft lbs	10 sq ft	242 lbs	2 in	5-wire	7 (3.2)	CALL
	G-800SA	110 VAC	24 VDC	55 sec	3456 in lbs	43-79 ft lbs	17 sq ft	440 lbs	2.5 in	6-wire	10 (4.5)	CALL
	G-800DXA	110 VAC	24 VDC	55 sec	3456 in lbs	43-79 ft lbs	17 sq ft	440 lbs	2.5 in	6-wire	10 (4.5)	CALL
	G-1000DXA	110 VAC	24 VDC	55 sec	5200 in lbs	79 ft lbs	22 sq ft	440 lbs	2.5 in	6-wire	15 (6.8)	CALL
	G-2800DXA	110 VAC	24 VDC	55 sec	20,832 in lbs	219 ft lbs	34 sq ft	880 lbs	2.5 in	6-wire	26 (11.8)	CALL
	G-5500	110 VAC	24 VDC	58 sec	289 ft-lbs	*	10.7 sq ft	440 lbs	2.5 in	6-wire	20 (9)	CALL
	G-550	110 VAC	24 VDC	67 sec	289 ft-lbs	101 ft-lbs	10.7 sz ft	440 lbs	1-5/8 in	6-wire	7.9 (3.6)	CALL

<sup>\*</sup> Elevation 101 ft-lbs, Azimuth 44 ft-lbs

# **CRANK-UP TUBULAR**



## **MA-Series Crank-Up Masts**

The premier MA-series crank-up Tubular Towers are designed to be both safe and neighbor friendly. The slender design gives a clean, flagpole-like appearance and is rated at 90 mph winds per the IBC 2006 code. Per TIA/EIA specications, adequate safety margins are included. International Building Code calculations are available for most models.

The MA-40 and 550 models come standard with flat base, two 1/2" x 10" anchor bolts, wall bracket and rotator plate mounted on top of top section. No guying is required when tower is properly bracketed to the eave of your roof.

MA-series towers are completely self-supporting only when used with accessory MARB or MAB series bases. The MARB series rotator base allows the entire tower and antenna to be rotated from the base (rotator not included). This provides for easy rotator maintenance plus emergency hand rotation of the entire tower and antenna.

The MA-550MDP, 770MDP and 850MDP models include a heavy duty motor drive with positive pull down. The MDP models provide motorized raising and lowering of the tower. A remote control unit (RMC-1000) accessory is available that allows raising and lowering from your ham shack or other remote location.

All models without motor drives come standard with manual hand winches which have load actuated brakes for maximum safety. This feature prevents the winch from free-wheeling and causing injury to you or your installation in the event that you lose your grip during raising or lowering.

All steel used at US Tower conforms to ASTM specifications. All welding is done by certified factory personnel. All of our towers are factory tested by trained personnel before leaving the plant.

#### **MA-Series Base Information**

Foundations are designed in accordance with the International Building Code (IBC) for a "non constrained" condition using Class 5 soil. Alternate or custom foundation designs are available for an extra charge. Anchor rods may be ordered from US Tower; however, reinforcing steel is not provided. Welder's certified IAW AWS D1.1. Contact US Tower for additional information.

Rebar is not provided by US Tower. MA-40 & 550 use their standard bases as a template. These standard bases use only 2 bolts. Wooden template included with MAB & MARB bases.

Because of wide variations throughout the country in zoning requirements and loading conditions (snow, wind, ice, etc.), it is the responsibility of the customer to make certain that his Tower conforms to all applicable codes. We recommend you obtain all necessary permits prior to purchase .

Model Number	Height Maximum	Height Minimum	Sections	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
MA-40	40'	21'6"	2	242	3" sq.	4.5"	CALL
MA-550	55'	22'1"	3	435	3" sq.	6.625"	CALL
MA-550MDP*	55'	22'1"	3	620	3" sq.	6.625"	CALL
MA-770	75'	22'10"	4	645	3" sq.	8.0"	CALL
MA-770MDP*	75'	22'10"	4	830	3" sq.	8.0"	CALL
MA-850	85'	23'6"	5	943	3" sq.	10.0"	CALL
MA-850MDP*	85'	23'6"	5	1130	3" sq.	10.0"	CALL

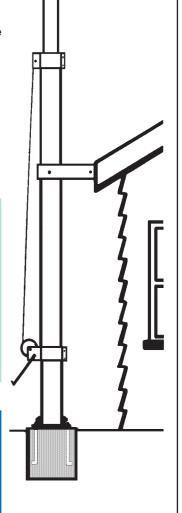
All Towers will handle 10 sq. ft antenna at 50 MPH winds.

## The Customer is Responsible

for obtaining all local city or county building and tower permits

AND

for taking the tower off the freight truck when it is delivered. Please arrange for adequate help. Call Toll-Free for Discounts on U.S. Towers and Accessories



The factory reserves the right to make changes or modifications without notice.



<sup>\*</sup> These towers also requires purchase of MCL-100 or RMC-1000

# **MA-SERIES ACCESSORIES**

Model Description Weight

## **MAF Raising Fixture**

MAF-Series Raising Fixture accessory for easy raising and antenna servicing. For use with MARB and MAB bases.

MAF-40	Raising fixture for MA-40	35#
MAF-550	Raising fixture for MA-550	70#
MAF-770	Raising fixture for MA-770	75#
MAF-850	Raising fixture for MA-850	80#

## **MARB Freestanding Rotator Base**

MARB-40	Freestanding rotator base for MA-40 with four 3/4" x 27" anchor bolts and thrust bearing	35#
MARB-550	Freestanding rotator base for MA-550 with four 1" x 27" anchor bolts and thrust bearing	140#
MARB-770	Freestanding rotator base for MA-770 with four 1" x 27" anchor bolts and thrust bearing	195#
MARB-850	Freestanding rotator base for MA-850 with four 1-1/8" x 27" anchor bolts and thrust bearing	280#

## **MAB Freestanding Type Base**

MAB-40	Freestanding hinged base for MA-40 with four 3/4" x 27" anchor bolts	55#
MAB-550	Freestanding hinged base for MA-550 with four 1" x 27 anchor bolts	119#
MAB-770	Freestanding hinged base for MA-770 with four 1" x 27" anchor bolts	175#
MAB-850	Freestanding hinged base for MA-850 with four 1-1/8" x 27" anchor bolts	180#

#### **Coax Standoff Arms**

CX-2M	Coax standoff arms for MA-40	4#
CX-3M	Coax standoff arms for MA-550	6#
CX-4M	Coax standoff arms for MA-770	8#
CX-5M	Coax standoff arms for MA-850	10#

The IV-16 slips over the top of the mast and rests at the top of the tower to hold inverted vee antennas. The IV-16 cannot be used with the MARB rotator base.

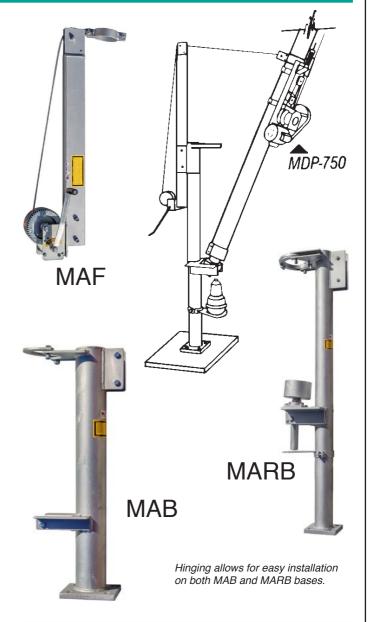
Please designate model of tower if ordering alone.

#### **Motor Drives**

IV-16

MD-75	Heavy-duty motor drive with 1 HP	155#
	motor and gear box.	

MDP-750 Heavy-duty motor drive with 1 HP motor, gear box, and positive pull down.



## **Remote Control Accessories**

Model	Description W	eight		
RMC-1000	Relay operated remote control for raising and lowering your tower from your ham shack or other remote location.	18#	MCL	. 100
MCL-100	Limit switch control package includes limi switches, limit switch brackets, and control box at the base of the tower.	7# t		

5#

# **LATTICE TOWERS**



## VER TMM SERIES.

US Tower's latest design includes the compact TMM series towers giving Hams in restricted areas an alternative.

The TMM series has a minimum retracted height of 11'4" (may vary, depending on rotator used) and a maximum height of 47' including mast. At the tower's retracted height, visual impact is reduced to a minimum and antenna servicing is made easier. Typically the tower and antenna are below the roof line of your home when the tower is fully retracted.

The TMM series towers are lightweight, freestanding crank-up towers that allow up to 20.7 square feet of antenna in 90 mph winds per TIA/EIA specifications. The TMM-433HD allows 31.8 square feet in 90 mph winds. These lightweight towers should provide many years of trouble free service. All of our towers have a hot dipped galvanized finish inside and out.

The TMM-433SS and 541SS have a 10" top section which will permit the installation of the Yaesu G800 rotator inside the top section.

Oversized rotators will prevent full retraction

of your tower; however, they may be used if full retraction is not required. This restriction is dependent upon location of rotator plate. All TMM Series towers include anchor bolts, rotator plate, hinged T-base, load actuated winch, and eight feet of 2" OD x 120" antenna mast

The TMM-433SS, -433HD and -541SS will accept the MD-75 or MDP-750 motor drive accessories. The MDP-750 motor drive accessory is compatible with both of our MCL-100 and RMC-1000 limit switch packages (see accessories).

## TX SERIES \_\_\_\_

US Tower's freestanding TX series crank-up towers are as strong or stronger than most competitors' heavy-duty models. The TX series towers have 21 foot sections with 4 foot overlap to provide extra height and strength. In addition, the overlap helps prevent binding while lowering your tower in high wind conditions.

The TX series towers have a large enough top section (12 1/2") to permit installation of most rotators inside the section for maximum strength while allowing the section to fully retract. Cross bracing at critical points on the tower ensures safety and additional strength. All US Tower crank-up towers have a heavy-

duty, hot dipped galvanized finish both inside and out, which should provide many years of trouble free service.

The TX series towers come complete with rotator plate and base hardware which includes large steel anchor bolts and heavy-duty steel T-base that allows the tower to hinge on for easy installation. All T-bases will accept the TRX series raising fixtures for easy one-man installation. All TX series towers include Fulton hand winches except MDP and MDPL models, which feature automatic load actuated brakes for maximum safety. Masts and motor drives are available as accessories (see accessory page).

The TX-472MDP comes complete with MDP-750 motor drive with positive pull-down feature. The TX-489MDPL includes the MDPL-1000 motor drive and level wind feature. A limit switch assembly (MCL-100), or a remote raising device (RMC-1000) is required for all 72' and under towers that will be paired with either the MDP-750 or MDPL-1000 motor drive units (see accessory page for description).

US Tower's TX series requires no guying. The wind loading is calculated at 90 mph winds per TIA/EIA specifications. To assist you in applying for necessary construction permits, IBC 2006 calculations are available for most models.

## HDX SERIES\_\_\_

US Tower's HDX series heavy-duty crank-up towers have up to 2 1/2 times more windloading capacity than others commonly advertised. This superior strength allows for large stacked arrays, while using our commercial type bases and anchor bolts that can be easily installed and vertically adjusted. All HDX series T-bases are designed to use our TRX series raising fixtures to make installations and antenna servicing a one man job.

Modified top sections for the HDR-300 rotators are available at a small additional

cost. US Tower carries as accessories many different sizes and strengths of masts which can be used with the HDX series towers. The HDX-572MDPL and 589MDPL motorized towers provide dual level wind, positive pull down and heavy duty gear box features. The HDX-589MDPL comes complete with the MCL-100 limit switch package included. All towers using MDP-750 and MDPL-1000 motor drives must use either the RMC-1000 accessory limit switch package or the MCL-100 (see accessory page), which allows the raising and lowering of your tower from the

comfort of your ham shack or any remote location.

All HDX series towers come complete with rotator plate, anchor bolts, and heavy-duty T-base (doubles as template). US Tower's special T-base design allows the tower to hinge for easy installation. US Tower's crank towers require no guying. The HDX Series towers are rated at 90 mph winds per TIA/ EIA specifications. To assist you in getting a construction permit, IBC 2006 calculations are available for most towers.

## CRANK-UP TOWER BASE INFORMATION \_

Foundations are designed in accordance with the International Building Code (IBC) for a "non constrained" condition using Class 5 soil. Alternate or custom foundation designs are available for an extra charge. Anchor rods may be ordered from US Tower; however, reinforcing steel is not provided. Welder's certified IAW AWS D1.1. Contact US Tower for additional information.

Because of wide variations throughout the country in zoning requirements and loading conditions (snow, wind, ice, etc.), it is the responsibility of the customer to make certain that his Tower conforms to all applicable codes. We recommend you obtain all necessary permits prior to purchase .

# The Customer is Responsible

for obtaining all local city or county building and tower permits AND

for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.



# **SELF-SUPPORTING CRANK-UP TOWERS**

## **Tower Specifications**

## **COMPACT TMM-SERIES CRANK-UP TOWERS**

Model Number	Height Maximum	Height Minimum	Sec- tions	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price	
TMM-433SS	33' w/o Mast	11'4"	4	315	10"	18"	CALL	
TMM-433HD	33' w/o Mast	11'4"	4	400	12.5"	20 7/8"	CALL	
TMM-541SS	41' w/o Mast	12'	5	430	10"	20 7/8"	CALL	
Towers handle 18 sq. ft, antenna at 50 MPH winds. TMM-433HD handles 24 sq. ft								

### TX-SERIES FREE-STANDING CRANK-UP TOWERS

Model Number	Height Maximum	Height Minimum	Sec- tions	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price		
TX-438	38'	21'6"	2	355	12.5"	15"	CALL		
TX-455	55'	21'	3	670	12.5"	18"	CALL		
TX-472	72'	22'8"	4	1040	12.5"	21 5/8"	CALL		
TX-472MDP*	72'	22'8"	4	1210	12.5"	21 5/8"	CALL		
TX-489MDPL	89'	23'4"	5	1800	12.5"	25 5/8"	CALL		
All Towers will handle 18 sq. ft. antenna at 50 MPH winds.									

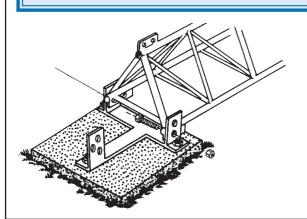
<sup>\*</sup> This tower requires purchase of MCL-100 or RMC-1000

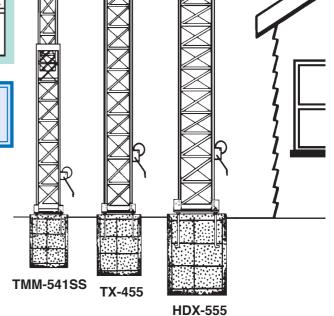
#### **HDX-SERIES HEAVY-DUTY CRANK-UP TOWERS**

Model Number	Height Maximum	Height Minimum	Sec- tions	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
HDX-538	38'	21'6"	2	600	15"	18"	CALL
HDX-555	55'	22'	3	870	15"	21 5/8"	CALL
HDX-572MDPL	72'	22'8"	4	1600	15"	25 5/8"	CALL
HDX-589MDPL	89'	23'8"	5	2440	15"	30 5/8"	CALL
HDX-689MDPL	89'	24'	5	3400	18"	37 1/8"	CALL
HDX-5106MDPL	106'	24'3"	6	3850	15"	37 1/8"	CALL

All Towers will handle 30 sq. ft. antenna at 50 MPH winds. HDX-689MDPL rated at 60 sq. ft of antenna at 50 mph winds. HDX-5106MDPL rated at 35 sq. ft. of antenna at 50 mph winds.

Call Toll-Free for Discounts on U.S. Towers and Accessories





The factory reserves the right to make changes or modifications without notice.



## **Raising Fixture**

Model Description

TRX-80 Standard model tower raising fixture for TMM, TX,

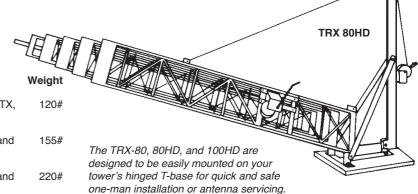
and HDX series towers.

TRX-80HD Heavy-duty model tower raising fixture for TX and

HDX series towers.

**TRX-100HD** Heavy-duty model tower raising fixture for TX and

HDX series towers.



### **Remote Control**

Model Description We

RMC-1000 Relay operated remote control for raising and lowering your tower from your ham shack or other

remote location. The RMC-1000 includes limit switches, limit switch brackets, and two relay boxes. The RMC-1000 can only be used with the

MDP-750 and MDPL-1000 motor drives.

MCL-100 Limit switch control package. The MCL-100

includes limit switches, limit switch brackets and control box at the base of the tower. The MCL-100 allows you to raise and lower your tower with automatic shut down when maximum or minimum height is reached. The MCL-100 can only be used with the MDP-750 and MDLP-1000 motor drives.

Weight

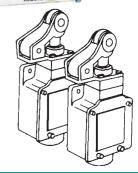
18#

7#

220#

RMC 1000

These items can only be installed by the factory at the time of your tower order. These items cannot be installed in the field and must be a part of your complete tower order.



#### **Motor Drives**

ModelDescriptionWeightMD-75Heavy-duty motor drive with 1 HP motor and 1 gear box.55#MDP-750Heavy-duty motor drive with 1 HP motor, gear box185#

and positive pull down. US Tower's positive pull down feature is designed to mechanically apply the same strength in the retraction process as is used in the raising of your tower. Positive pull down is

same strength in the retraction process as is used in the raising of your tower. Positive pull down is very important in lowering your tower in high wind conditions. The MDP-750 differs from the standard motor drive unit (MD-75) which releases tension on the cables allowing the weight of the upper sections

to be the only lowering force.

MDPL-1000 Heavy-duty motor drive with 1 HP motor, heavy-

duty gear box, positive pull down and dual level wind features. Dual level wind is an exclusive US Tower design allowing the cable to wind on the motor drum in a uniform manner. This prevents the

cable from overlapping on the drum.

Call factory for replacement 1 HP motors, hand winches, limit switches, 3/16" x 7" x 19" and 1/4" x 7" x 19" aircraft cable, anchor bolts, belts, pulleys, sprockets, and modified bases. The factory reserves the right to make changes or modifications without notice.



#### The Customer is Responsible

for obtaining all local city or county building and tower permits AND for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.

# **CRANK-UP ACCESSORIES**

Model Description Weight

## **Mast Raising Fixture**

**MRF** Mast raising fixture with winch and cable that attaches to the top of your tower to assist in

raising and lowering your



### **Coaxial Arm Sets**



L		•
IV-16	The IV-16 attaches over the top of the mast near the top of the tower to hold inverted vee antennas. Please designate model tower to be used. Cannot be used with MARB rotator base.	5#
CX-2	Set of 2 coax standoff arms	6#
CX-3	Set of 3 coax standoff arms	8#
CX-4	Set of 4 coax standoff arms	10#
CX-5	Set of 5 coax standoff arms	13#
CX-6	Set of 6 coax standoff arms	15#

#### **Masts**

US Tower offers three different types of masts. The M-5, 10, 15 and 20 masts have .120" wall thickness. The M-15R and 20R have steel pipe inserts in the lower half of the mast which provides extra strength where most needed without adding unnecessary weight in the top portion. The M-15R and 20R have a wall thickness of .250". The CM-20 has a wall thickess of .375".

Model	Description	Weight
M-5	2" O.D. x 5 foot galvanized mast	14#
M-8	2" O.D. x 8 foot galvanized mast	20#
M-10	2" O.D. x 10 foot galvanized mast	25#
M-15	2" O.D. x 15 foot galvanized mast	40#
M-15R	2" O.D. x 15 foot reinforced galvanized mast	50#
M-20	2" O.D. x 20 foot galvanized mast	55#
M-20R	2" O.D. x 20 foot reinforced galvanized mast	70#
CM-20	2" O.D. x 20 foot chromolly mast	140#

Model Description

## **Thrust Bearing**

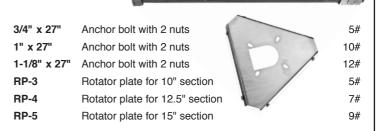
20#

TB-2US Thrust Bearing for 2" mast, 2 flange holes

10#



#### **Anchor Bolts and Rotator Plates**



#### **Tower Accessories**

R- Required S- Standard O - Optional	TX438	TX-455	TX-472	TX-472MDP	TX489MDPL		HDX-538	HDX-555	HDX-572MDPL	HDX-589MDPL	HDX-689MDPL	HDX-5106MDPL	6	TMM-433SS	TMM-433HD	TMM-541SS	HRO Price
Masts						П											
M-5	0	0	0	0	0		0	0	0	0	0	0		0	0	0	\$74.95
M-8	0	0	0	0	0		0	0	0	0	0	0		0	0	0	\$114.95
M-10	0	0	0	0	0		0	0	0	0	0	0	Ī	0	0	0	\$129.95
M-15	0	0	0	0	0		0	0	0	0	0	0		0	0	0	\$199.95
M-20	0	0	0	0	0	П	0	0	0	0	0	0	Ĭ				\$249.95
M-15R	0	0	0	0	0		0	0	0	0	0	0		0	0	0	\$299.95
M-20R	0	0	0	0	0		0	0	0	0	0	0	Ī				\$379.95
CM-20	0	0	0	0	0		0	0	0	0	0	0					CALL
Raising Fixture						П					8						
TRX-80	0	0					0	0						0	0	0	\$799.95
TRX-80HD			0	0	0		1000	0	0	0							\$1,099.95
TRX-100HD	Г										0	0	Ī				\$1,499.95
Coax Standoff Arms						П	ľ				0		Ī				
CX-2	0		П			П	0						Ī				\$99.95
CX-3		0						0									\$129.95
CX-4	П		0	0					0					0	0		\$199.95
CX-5					0		- 1			0			Ĭ			0	\$279.95
CX-6	Г										0	0					\$369.95
Motor Drives						Π							Ī				
MD-75	0	0					0	0						0	0	0	\$1,799.95
MDP-750	0	0	0	S		П	0	0					Ī	0	0	0	\$2,799.95
MDPL-1000	П		0		S		- 1	0	S	S	S	S					\$3,999.95
Remote Control						П							Ī				
RMC-1000	Г	0	0	0	0		0	0	0	0				0	0	0	\$1,869.95
MCL-100		0	0	0	0		0	0	0	S	S	S		0	0	0	\$899.95
Miscellaneous						П											
3/4" X 27 bolts	S						- 8										\$46.95
1" X 27" bolts		S			S		S		S					S			\$56.95
1-1/8" X 27" bolts			S	S				S		S	S	S			S	S	\$75.95
RP-3														S		S	\$61.95
RP-4	S	S	S	S	S		- 1								S		\$74.95
RP-5							S	S	S	S							\$113.95
MRF	0	0	0	0	0		0	0	0	0	0	0			0		\$499.95
TB-2US	0	0	0	0	0		0	0	0	0	0	0		O*	0	0.	\$179.95
IV-16	0	0	0	0	0	П	0	0	0	0	0	0	ı	0	0	0	\$74.95

<sup>\*</sup> TMM-433SS and TMM-541SS require a #3 top assessory kit for the optional TB-2US.

109

## **WEATHER STATIONS**

## Peet Brothers

Tracking more than 100 weather values



### Ultimeter 2100 HRO Price \$399.95

The Ultimeter 2100 features a stunning platinum-tone housing with brilliant blue display backlighting. An illuminated keypad provides exceptional visibility in darkness or low-light conditions. The weather sensor technology includes a unique all-digital wind sensor. Its microprocessor is 8 times faster and has 4 times the memory of Peet Brothers' earlier weather stations.

- Barometric storm alert, wind speed, wind direction, outdoor temperature, indoor temperature, wind chill, time, date and (with optional sensors) indoor humidity, dew point and rainfall.
- Two versatile 4-mode serial ports can accept remote commands. Communicate with external devices to transmit data or collect it remotely by phone, modem, or radio link. The 5 minute packet mode is perfect for economical radio "beacon" transmission. The 2100 comes "APRS-Ready," requiring only direct cable connection to a TNC (cable not provided).
- An exclusive Triple-Bank Memory System stores highest and lowest readings—today's, yesterday's and long term—plus the date and time that every high and low occurred.
- Long term highs and lows can be reset individually or use a master reset.
- Built-in static electricity discharge protection for all outdoor sensors; has a 3 prong grounded AC adapter.
- Rain rate alarm gives flash flood alerts
- The 2100 has a full array of adjustable alarms. A battery test circuit warns of a weak battery.

## Ultimeter 100 HRO Price \$199.95

The Ultimeter 100 automatically stores today's and yesterday's highs, lows and total rainfall so you can compare the readings. Also stores long term high, low and rain information since it was last reset. A 3-mode serial port for interfaces with telephone, modem or radio reporting.



## Weather Picture HRO Price \$369.95

(aluminum version)

The Weather Picture receives data from an Ultimeter and continuously displays your pre-selected data. The 8 inch compass rose and big 0.8 inch illuminated red numerals are clearly visible day or night. View even from across the room.



#### Ultimeter 800 HRO Price \$298.95

The Ultimeter 800 has nearly all the features of the Ultimeter 2100 except the barometer. It has wind speed, wind direction, outdoor temperature, indoor temperature. wind chill temperature, time, date. automatic leap vear adjustment and automatic scan mode as standard functions. With optional sensors, rain, outdoor humidity, indoor humidity and dew point reading are available. It automatically stores today's and vesterday's highs, lows and total rain fall. It also stores long term highs and lows. Alarms are provided for high wind, high and low outdoor temperature, high and low indoor temperature. The serial port has three output modes.

# WeatherText™ Special

WeatherText™ is an RS-232 serial data output mode in which the instrument puts out one human-readable text Weather Report each minute. Viewable on a PC

each minute. Viewable on a PC monitor using terminal software such as HyperTerminal or may be transmitted as a data packet. For a limited time every 800 / 2100 Ultimeter Weather Station purchased will include the WeatherText™ Tools Data Logger key, including

software and PC interface cable.

\$69 retail value

**Davis E::** 

Wireless Weather Stations

# NEW!

## Vantage Pro2<sup>™</sup> HRO Price \$594.95

The Vantage Pro2™ weather station has a versatile sensor suite that combines our rain collector, temperature and humidity sensors, and anemometer into one package. Customize by adding consoles or special-purpose options. Available in both wireless and cabled versions.

This is the first and only weather station in its class to use frequency hopping spread spectrum radio technology to transmit weather data wirelessly up to 1,000 ft (300 m) outdoors, line of sight. Typical range through walls under most conditions is 200 to 400 feet (60 to 120 m). Add wireless repeaters for distances up to 1.7 miles (2.7 km).

- Has a large, backlit 3.5" x 6" (9 x 15 cm) LCD screen.
- · Updates every 2.5 seconds.

## 7 94 292 13 21 - 12 13 21 - 12 13 21 - 12 14 58.

- Optional WeatherLink data logger and software offer additonal analyses.
- Options are available for UV/ solar, soil moisture, short and long-range repeaters, and much more.
- Electronic components are housed in a weather-resistant shelter.
- Power the console with the included power adapter or with three C batteries (not included).
- Comes with mounting hardware. Add optional #07717 Mounting Pole or #07716 Mounting Tripod.

### Vantage Vue® HRO Price \$394.95

This wireless weather station provides accurate, reliable weather monitoring in a self-contained, easy-to-install system. Includes outdoor sensor array and LCD console.

- Vantage Vue radio-compatible with our flagship Vantage Pro2 professional stations so you can mix-and-match most components.
- Station includes temperature, wind, humidity, and rain sensors; console; and mounting hardware (mounting pole sold separately).
- Console shows: time and date, moon phase, forecast icons, temperature, humidity, barometric trends, heat index, and wind chill.
- Rain totals and rain rate are updated every 20 seconds for the last 25 hours, days, months.
- Domed buttons are easy to sense and press. They glowin-the-dark for use at night.
- Track daily highs and lows, temperature changes by the hour and barometric value changes.



- Graph the last 25 hours, days or months. View up to 50 graphs including temperature, rain, rain rate, wind and barometric pressure—all on the console.
- Set 22 simultaneous, different alarms to warn of dangers such as high winds, freezing temperatures, rain rate, flood warning, and more.
- Windspeed updates every 2.5 seconds. Displays in miles per hour, meters per second, kilometers per hour and knots. Measures wind direction in compass points or degrees.
- Frequency-hopping spread spectrum radio ensures consistent transmission up to 1,000 ft. (300 m) from integrated sensor suite to console.



# **General Information for Our Valued Customers**

Easy Ordering
Toll-free 800 numbers located throughout the United States are available for orders. This provides personnel at one location or another to answer vour questions for extended hours Monday through Saturday. You will find the same low prices at all locations and, thanks to computers, we have the stock levels of all locations available to each salesperson for estimates of availability and delivery.

24 Hour "On-Line" Ordering is now available on the INTERNET! URL is http://www.hamradio.com

Shipments are made from any of our locations that has the particular items you need in stock. In most cases, the shipment will be made from the location nearest you (if stock is available). HRO is trying to provide the quickest shipments in the industry using these methods

California customers can now order using toll-free numbers to speak to their California store of choice.

## Sales Tax

State and local laws require us to collect and remit State sales / use tax on orders shipped from any of our locations INTO Arizona, California, Colorado, Georgia, Texas or Virginia.

You will find that this small extra charge will be more than overcome by the convenience of the largest ham radio inventories in the United States. You will also find courteous and knowledgeable salespeople to assist you. We think you will find HRO to be the company you want backing you when it comes to dealing with any problems you might have with manufacturers or shipping companies.

## **Phone Orders**

To place a phone order using a credit card, please have the following information available if you are a first-time caller or have not made a recent purchase from HRO.

We will ask for your callsign (if any), credit card number, expiration date, your home telephone number, and possibly the name, address, and telephone number of the bank listed on your charge card statement.

## **Payment**

We accept Visa, MasterCard, American Express, and Discover Card. Personal checks are also accepted: however, processing time may delay shipment by some 10 days.

When using a credit card, please have the card in front of you since we will need all the information, including the name of the issuing bank. If the card holder's BILLING address differs from the shipping address, please be sure to specify both addresses and telephone numbers. For your protection, we thoroughly investigate the validity of all credit card purchases.

## COD Orders

COD payments must be made by cashiers check or money order at the time of delivery. There is a small fee for COD shipments.

## **Commercial Sales Purchase Orders**

Written purchase orders will be accepted from city, state, and federal agencies, and, with prior approval of credit, from commercial organizations. HRO quotes, in most cases, prices that require payment on receipt of merchandise. You may find a surcharge for credit terms applied to your pricing. Please indicate that you require terms when calling for price quotes.

## Delivery

Free UPS Ground Transportation in the continental US on most items over \$100.

All Alaska and Hawaii shipments can now be shipped by UPS Ground as well as by Blue Label (2nd Day Air) or Red Label (Overnight) or USPS. Please ask for charges.

In a Hurry? If necessary to expedite shipments, UPS has Red Label (overnight), Blue Label (2nd-day) and Orange Label (3 day) services available at an extra cost. Please request charges for these services.

Foreign Deliveries: We ship world-wide. Contact our stores, by fax or email, with your needs. We can give you guotes and details for placing your foreign order. Payment methods include wire transfer direct to our bank as well as payment by VISA/ MC charge cards or check drawn in U.S. Funds from a U.S. Bank. Shipments are made (depending on size) by UPS, FED EX, DHL, or international air mail. Some orders to some foreign countries cannot be insured to the full value

Truck Delivery: On day of delivery by truck, please be sure to have enough help, and / or proper equipment on hand for unloading merchandise. Truck drivers are NOT required to provide assistance. If you are not experienced at handling large, awkward items such as towers, antennas or amplifiers, please ask properly trained people to assist you.

Canadian Orders can now be shipped via UPS. These costs will be added to your invoice.

## Damaged Items

UPS If the item is obviously damaged, note this with the driver and refuse shipment. This item will be returned to HRO and another will be sent at no additional charge. If hidden damage is noted, contact UPS as soon as possible. They will arrange pickup. Once the item is received by HRO, a replacement will be sent.

TRUCK If there is damage or the shipment is short, it is the customer's responsibility to file the claim with the trucking company. At the time of receipt of item, it is recommended that you have the driver write "damaged" or indicate shortage on the bill of lading he gives to you. Be sure to have the same notation as well as drivers signature on his copy also.

MAIL It is the customer's responsibility to file all loss or damage claims with the postal department.

## **Prices**

Many prices shown are suggested list price. In most cases we offer large discounts. Equipment manufacturers constantly change prices, offer specials or react to the international exchange rates. Simply call one of our 800 numbers and our staff will be happy to quote you the current selling price of the item you are interested in. Prices are subject to change without notice or obligation to the customer. Sorry, we cannot honor typos in this catalog.

## Software

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

## **Lost Items**

When your order is delivered, please carefully count items and if anything is missing, notify HRO at once.

Occasionally, cartons shipped at the same time will arrive at their destination two or three days apart.

If you notify HRO within 10 days, we will replace lost or damaged items after completion of proper documentation and acceptance by the shipping agency.

# New Equipment Returns Products are not sold for evaluation. Under some cir-

cumstances (at the discretion of HRO) and with prior approval of the store of purchase, HRO will accept an item for return. Under most circumstances a 15% restocking fee and all freight charges will be assessed.

Your means of refund for returns will be the same as that used for your original payment except for cash, which will be refunded by check. HRO will pay from its corporate offices. It can take up to two weeks.

Defective merchandise may be returned within 10 days of the original purchase for exchange. Original receipt must accompany the return. Contact your salesman for details.

## Manufacturer's New **Equipment Warranties**

Ham Radio Outlet supports all manufacturer's warranties. Actual warranty terms are included within the shipping container of most items. If needed, you may request from any of our locations a free copy of the manufacturer's written terms for any warranteed product. Please request by model number and indicate the page in this catalog that represents the product.

Ham Radio Outlet will in many cases provide instore repairs; please contact the store of purchase for information. It will be necessary to provide us with the invoice number and purchase date, as most manufacturers need this information to process under their FREE warranty repair terms.

## **New Equipment Warranty Returns**

When returning equipment for repair, please pack the item in original packing material or something similar to provide adequate protection during the shipping process. Note on box: "ATTENTION SERVICE." Include a copy of your purchase invoice, and a complete and detailed description of the problems. Without the invoice or a complete description, delays will be experienced in providing the proper service and returning the item to you. Be sure to insure the package for its replacement cost.

HRO will repair or replace the defective item at our option. If the item is found to be defective under the terms of the manufacturer's warranty, no charge will be made for service or return shipping within continental USA. It is the customer's responsibility to ship all defective items to the service center for warranty repair.

## HRO Extended Warranty

HRO now offers an optional Extended Warranty Program for most Amateur Radios, which must be purchased within 30 days of the purchase of the related product. The Extended Warranty Program starts at the conclusion of the new product original warranty period, and must be processed by HRO directly via any of our stores. The Extended Warranty Program can be purchased for one (1) or two (2) additional years, does not apply to accessory items, and is available to the original purchaser only and not transferable. See page 27 for details.

## **Problems**

HRO prides itself in its ability to service the customer. If there is a problem please contact the manager of the store from which you purchased the merchandise. If for some reason your problem cannot be remedied by that store manager, please feel free to call Ham Radio Outlet Corporate Headquarters at (925) 831-1771 and explain the situation. At this point our national sales staff will see that your problem is addressed.

Thank You for choosing HRO The World's Largest Ham Outlet

# Serving You From Coast to Coast and Around the World



## Order Toll-Free From a Location Near You

Or Take Advantage of Secure 24-Hour Ordering: http://www.hamradio.com

If your closest 800 number is busy, please call one of our other numbers. Phone Hours: 9:30 am to 5:30 pm Monday – Saturday

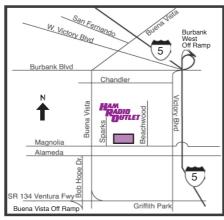
## 24-Hour FAX Order Lines at all Store Locations



**ATLANTA, GA 30340** 6071 Buford Hwy.

Doraville, 1 mi. north of I-285 (770) 263-0700 (800) 444-7927 24 Hour FAX (770) 263-9548 Email: atlanta@hamradio.com

Mark KJ4VO Mgr David Al4XL, Will Kl4VXF, Denise Josh W4JDH, Jim N1ABM Bill W5RQR James KK4WNX Ken KI4BQS, Ray W4GQQ



**BURBANK, CA 91506** 1525 W, Magnolia (818) 842-1786 (877) 892-1748 24 Hour FAX (818) 842-5283

Email: burbank@hamradio.com

## **ANAHEIM, CA 92801**

933 N. Euclid St. Near Disneyland (714) 533-7373 (800) 854-6046

Mike KB6VHF 24 Hour FAX (714) 533-9485 Laura KB6UHF Email: anaheim@hamradio.comRon N6NFA, Art K6MIV

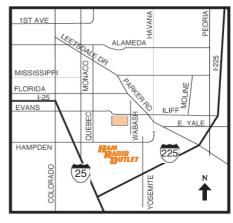
Janet KL7MF Mgr

Bob KB6CIA

Denis K9ADB

Bill W1HIJ, Ted KB6CUS,

Phil AD6NH. Fred WØPE



**DENVER, CO 80231** 8400 E. ILIFF Ave. #9 (303) 745-7373 (800) 444-9476

24 Hour FAX (303) 745-7394

John WØIG Mgr Russ KAØULN Kent KØTKM Mike KCØSM Stan KØSDW Jon NØRDE, Jim KGØPP Robb KCØZGK Email: denver@hamradio.com Bryan KBØA, Jim KØHY

Eric K6EJC Mgr

Rick K6VE

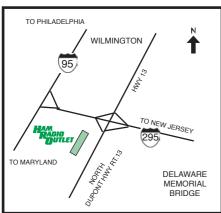
Tom KW6C

Jim N6AJG

Mark N6MGM

Mark KK6CUK

# All Stores Open 10am - 5:30pm Monday - Saturday STORE LOCATIONS



## **NEW CASTLE. DE 19720**

1509 North Dupont Hwy, US13 Parkway Plaza (302) 322-7092 (800) 644-4476 24 Hour Fax (302) 322-8808

Email: newcastle@hamradio.com

Andrew N3NZS Roy WB2EOD Louie KC3BXY Ron AC2RF John K2AEN Vinnie N4NYY





David AD6ME

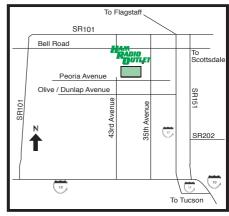
Kevin K6KBQ

Eric AK6Y

## OAKLAND, CA 94606

2210 Livingston St. I-880 at 23rd Ave. Ramp (510) 534-5757 (877) 892-1745 24 Hour FAX (510) 534-0729

Email: oakland@hamradio.com

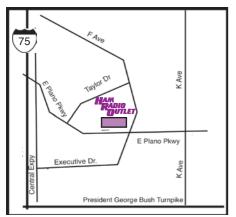


#### **PHOENIX, AZ 85029**

10613 N.43rd Avenue (602) 242-3515 (800) 559-7388 24 Hour FAX (602) 395-1244 Steve W7QY Rich WB2MAA Jim KE7EEU Mike K7DD Sandra

Gary N7GJ Mgr

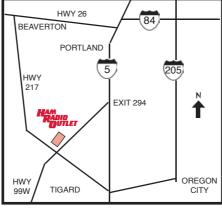
Email: phoenix@hamradio.com



#### **PLANO, TX 75074** 701 E. Plano Parkway

Suite 406 (972) 424-6219 (877) 455-8750

24 Hour FAX (972) 424-4969 Email: texas@hamradio.com Charity KF4RQY Mgr Eddie KD4RAZ Lorraine KD4VSM Jim K5JG Terry WX5TJW Dee N5UIG Vaden KC5OWU Dick AA5NT

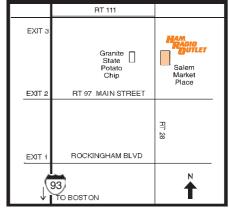


#### PORTLAND, OR 97223

11705 S.W. Pacific Hwy (99W) Suite 7 (503) 598-0555

(800) 765-4267 24 Hour FAX (503) 684-0469 Email: portland@hamradio.com

Leon W7AD Mgr Bill K7WCE Ron W7ATX Pat W1DUK Alexia N7TOY Roy W6II Bryan AD7LE Clayton K3CRS



#### **SALEM, NH 03079**

224 N. Broadway D-12 28 mi. N of Boston, Exit 2, I-93 (603) 898-3750 (800) 444-0047 24 Hour FAX (603) 898-1041

Email: salem@hamradio.com

Steve K1SMD Mgr Peter KI1M, Bob N1EUN Barry N1DNU Cal WA1WOK Bob K1QGF Joe KB1SSA Peter W1CBY Greg K1GTS, Valdo

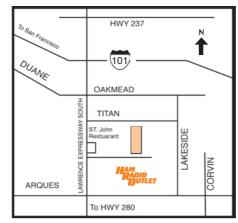


#### SAN DIEGO, CA 92123 5375 Kearny Villa Rd. #113

Hwy. 163 & Clairemont Mesa Blvd. (858) 560-4900 (877) 520-9623

24 Hour FAX (858) 560-1705 Email: sandiego@hamradio.com

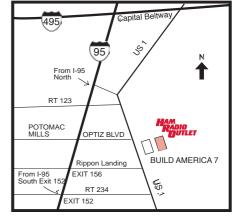
Jerry N5MCJ Mgr Joe N6SIX Ron, N6OMW Pete N3PV



#### **SUNNYVALE, CA 94085** 510 Lawrence Expwy, #102 (408) 736-9496 (877) 892-1749

24 Hour FAX (408) 736-9499 Email: sunnyvale@hamradio.com

Jon K6WV Mgr Don AA6W Wil AC6DC Howard W6HOC Ken KG6PO, Rick N6DQ Logan KZ6O Paul KI6DRN



#### **WOODBRIDGE, VA 22191** 14803 Build America Drive Bldg B

Exit 161, I-95 South to US 1 (703) 643-1063 (800) 444-4799

24 Hour FAX (703) 494-3679 Email: woodbridge@hamradio.com Rick KE4SKX

Steve W4SHG Mgr Joe N4JCS Bao Fang KK4JFK Joe KI4OHR Wayne K1NOC Scott KT4ER Bill W2BSA

# **INDEX**

<b>MANUFACTURERS</b>
ABR Industries
Acom 67-68
Aero Stream Communications
AlexLoop
Alinco
Ameritron
Andrew 83
ARRL Products30, 48-50
Artsci
Astron
AvMap
Bencher
Belden 83
Bongo Ties82
Buckmaster 50, 87
Butel         27           Cable Xperts         82
Callbook50
Chameleon Antenna88
CoaxWrap82
Coax-Seal82
Cobra Antennas
Comet70-71, 91-93 Communication Specialists45
CQ46-47
Create
Cushcraft 90
Daiwa70, 72, 80
Davis Cable
Davis Weather Stations110 Diamond27, 70, 72, 74, 80, 99-102
ECG Soldering Products
Elk Antennas
LIN ALICE II I 45
E Z Hang89
E Z Hang       89         Farallon       30
E Z Hang       89         Farallon       30         Flash & Pass       47
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HVGain       85
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HyGain       85, 102         Icom       7-12, 67, 72         Inet Labs       11         Kantronics       31
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5Yl       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HyGain       85, 102         Icom       7-12, 67, 72         Inet Labs       11         Kantronics       31         Kent       42
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HyGain       85, 102         Icom       7-12, 67, 72         Inet Labs       11         Kantronics       31         Kent       42         Kenwood       13-15, 72
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HyGain       85, 102         Icom       7-12, 67, 72         Inet Labs       11         Kantronics       31         Kent       42         Kenwood       13-15, 72         Kill-a-Watt       73
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HyGain       85, 102         Icom       7-12, 67, 72         Inet Labs       11         Kantronics       31         Kent       42         Kenwood       13-15, 72         Kill-a-Watt       73         Larsen       96-98
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HyGain       85, 102         Icom       7-12, 67, 72         Inet Labs       11         Kantronics       31         Kent       42         Kenwood       13-15, 72         Kill-a-Watt       73         Larsen       96-98         LDG Electronics       78-79, 84         Lido       45
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HyGain       85, 102         Icom       7-12, 67, 72         Inet Labs       11         Kantronics       31         Kent       42         Kenwood       13-15, 72         Kill-a-Watt       73         Larsen       96-98         LDG Electronics       78-79, 84         Lido       45         M²       86, 89, 103
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HyGain       85, 102         Icom       7-12, 67, 72         Inet Labs       11         Kantronics       31         Kent       42         Kenwood       13-15, 72         Kill-a-Watt       73         Larsen       96-98         LDG Electronics       78-79, 84         Lido       45         M²       86, 89, 103         Maha       69
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HyGain       85, 102         Icom       7-12, 67, 72         Inet Labs       11         Kantronics       31         Kent       42         Kenwood       13-15, 72         Kill-a-Watt       73         Larsen       96-98         LDG Electronics       78-79, 84         Lido       45         M 2       86, 89, 103         Maha       69         Maldol       85, 98
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HyGain       85, 102         Icom       7-12, 67, 72         Inet Labs       11         Kantronics       31         Kent       42         Kenwood       13-15, 72         Kill-a-Watt       73         Larsen       96-98         LDG Electronics       78-79, 84         Lido       45         M²       86, 89, 103         Maha       69         Maldol       85, 98         MFJ       37, 42, 70-73, 76, 79-80, 84, 87, 98
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HyGain       85, 102         Icom       7-12, 67, 72         Inet Labs       11         Kantronics       31         Kent       42         Kenwood       13-15, 72         Kill-a-Watt       73         Larsen       96-98         LDG Electronics       78-79, 84         Lido       45         M²       86, 89, 103         Maha       69         Maldol       85, 98         MFJ       37, 42, 70-73, 76, 79-80, 84, 87, 98         Mirage       67
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HyGain       85, 102         Icom       7-12, 67, 72         Inet Labs       11         Kantronics       31         Kent       42         Kenwood       13-15, 72         Kill-a-Watt       73         Larsen       96-98         LDG Electronics       78-79, 84         Lido       45         M²       86, 89, 103         Maha       69         Maldol       85, 98         MFJ       37, 42, 70-73, 76, 79-80, 84, 87, 98
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HyGain       85, 102         Icom       7-12, 67, 72         Inet Labs       11         Kantronics       31         Kent       42         Kenwood       13-15, 72         Kill-a-Watt       73         Larsen       96-98         LDG Electronics       78-79, 84         Lido       45         M²       86, 89, 103         Maha       69         Maldol       85, 98         MFJ       37, 42, 70-73, 76, 79-80, 84, 87, 98         Nirty Mini-Manuals       46-47         Niljon Antennas       89
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5YI       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HyGain       85, 102         Icom       7-12, 67, 72         Inet Labs       11         Kantronics       31         Kent       42         Kenwood       13-15, 72         Kill-a-Watt       73         Larsen       96-98         LDG Electronics       78-79, 84         Lido       45         M²       86, 89, 103         Maha       69         Maldol       85, 98         MFJ       37, 42, 70-73, 76, 79-80, 84, 87, 98         Mirage       67         NCG       88         Nifty Mini-Manuals       46-47         Niljon Antennas       89         Palstar       70-71, 77, 84
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5Yl       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HyGain       85, 102         Icom       7-12, 67, 72         Inet Labs       11         Kantronics       31         Kent       42         Kenwood       13-15, 72         Kill-a-Watt       73         Larsen       96-98         LDG Electronics       78-79, 84         Lido       45         M²       86, 89, 103         Maha       69         Maldol       85, 98         MFJ       37, 42, 70-73, 76, 79-80, 84, 87, 98         Mirage       67         NCG       88         Nifty Mini-Manuals       46-47         Niljon Antennas       89         Palstar       70-71, 77, 84 <tr< td=""></tr<>
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5Yl       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HyGain       85, 102         Icom       7-12, 67, 72         Inet Labs       11         Kantronics       31         Kent       42         Kenwood       13-15, 72         Kill-a-Watt       73         Larsen       96-98         LDG Electronics       78-79, 84         Lido       45         M²       86, 89, 103         Maha       69         Maldol       85, 98         MFJ       37, 42, 70-73, 76, 79-80, 84, 87, 98         Mirage       67         NCG       88         Niffy Mini-Manuals       46-47         Niljon Antennas       89         Palstar       70-71, 77, 84 <tr< td=""></tr<>
E Z Hang       89         Farallon       30         Flash & Pass       47         Force 12       86         Gap Antenna       85         Geochron       44         Glen Martin Towers       89         Gordon West School / W5Yl       46         Grundig / Eton       26         Ham Radio Deluxe       31         Heil Sound       38-40         Hustler       94-95         HyGain       85, 102         Icom       7-12, 67, 72         Inet Labs       11         Kantronics       31         Kent       42         Kenwood       13-15, 72         Kill-a-Watt       73         Larsen       96-98         LDG Electronics       78-79, 84         Lido       45         M²       86, 89, 103         Maha       69         Maldol       85, 98         MFJ       37, 42, 70-73, 76, 79-80, 84, 87, 98         Mirage       67         NCG       88         Nifty Mini-Manuals       46-47         Niljon Antennas       89         Palstar       70-71, 77, 84 <tr< td=""></tr<>

RadioWavz Antennas 84	
Remoterig	. 34
RF Space	. 25
RigExpert31	
RT Systems	
Samlex America72	
Scanner Master	37
SGC80	
Synthetic Textiles	83
Tarheel Antennas	
Tigertronics	27
Times Cable	
Timewave Technology	
Unadilla Uniden	. 04
Uniden	. 28
<i>US Tower</i> 104-	
Vibroplex	
Weller	
West Mountain Radio 32-33, 37, 42	
Whistler	
Wouxun	
Yaesu16-24, 67, 72, 88,	103
PROPULATO	
<u>PRODUCTS</u>	
Amplifiers	
Analyzers71	
Antenna Tuners 12, 33, 76	8-80
Antennas	
GPS	. 24
Handheld 6, 92, 97-99,	102
HF85-87, 90-91, 93-94	, 99
HF Mobile91, 93-94, 98,	102
On Glass97	7-98
Portable	
Repeater91	
SWL / Scanner27, 96	99
51127 55411151111111111111111111111111111111	
VHF / UHF 6 85-91 94	99
VHF / UHF	, 99
VHF / UHF Mobile88-92, 94	, 99 I-99
VHF / UHF Mobile 88-92, 94 Audio Solutions	, 99 I-99 S-37
VHF / UHF Mobile	, 99 1-99 3-37 , 84
VHF / UHF Mobile       88-92, 94         Audio Solutions       11, 32, 36         Baluns / Loading Coils       77         Batteries       6, 9, 15, 24	, 99 1-99 3-37 , 84
VHF / UHF Mobile       88-92, 94         Audio Solutions       11, 32, 36         Baluns / Loading Coils       77         Batteries       6, 9, 15, 24         Books, CDs, Magazines	, 99 1-99 3-37 , 84 , 69
VHF / UHF Mobile       88-92, 94         Audio Solutions       11, 32, 36         Baluns / Loading Coils       77         Batteries       6, 9, 15, 24         Books, CDs, Magazines       30, 46         Amateur       30, 46	, 99 1-99 3-37 , 84 , 69
VHF / UHF Mobile	, 99 1-99 3-37 , 84 , 69
VHF / UHF Mobile	, 99 1-99 3-37 , 84 , 69 3-50 . 27
VHF / UHF Mobile	, 99 1-99 3-37 , 84 , 69 3-50 . 27
VHF / UHF Mobile	, 99 1-99 3-37 , 84 , 69 3-50 , 27 , 24 , 93
VHF / UHF Mobile	, 99 1-99 3-37 , 84 , 69 3-50 , 27 , 24 , 93 , 75
VHF / UHF Mobile	, 99 l-99 3-37 , 84 , 69 3-50 , 27 , 24 , 93 , 75
VHF / UHF Mobile	, 99 1-99 3-37 , 84 , 69 3-50 , 27 , 24 , 93 , 75
VHF / UHF Mobile	, 99 1-99 3-37 , 84 , 69 3-50 . 27 , 24 , 93 , 75 . 30 , 75 . 83
VHF / UHF Mobile	, 99 3-37 , 84 , 69 3-50 , 27 , 24 , 93 , 75 , 30 , 75 , 83 , 24
VHF / UHF Mobile       88-92, 94         Audio Solutions       11, 32, 36         Baluns / Loading Coils       77         Batteries       6, 9, 15, 24         Books, CDs, Magazines       Amateur         Amateur       30, 46         SWL / Scanners       Cobles         Cloning / Programming       6, 9, 12         Coax       82-83         Connecting       30, 32         Packet / Data       9, 12, 30         Power       9, 12, 30         Rotator       6, 9, 12         Chargers       6, 9, 24	, 99 1-99 3-37 , 84 , 69 3-50 , 27 , 24 , 93 , 75 , 30 , 75 , 83 , 24 , 69
VHF / UHF Mobile       88-92, 94         Audio Solutions       11, 32, 36         Baluns / Loading Coils       77         Batteries       6, 9, 15, 24         Books, CDs, Magazines       Amateur         Amateur       30, 46         SWL / Scanners       Cobles         Cloning / Programming       6, 9, 12         Coax       82-83         Connecting       30, 32         Packet / Data       9, 12, 30         Rotator       70         Cases, Radio       6, 9, 12         Chargers       6, 9, 24         Clocks       6, 9, 24	, 99 1-99 3-37 , 84 , 69 3-50 . 27 , 24 , 93 , 75 . 83 , 24 , 69 . 44
VHF / UHF Mobile	, 99 1-99 3-37 , 84 , 69 3-50 . 27 , 24 , 93 , 75 . 83 , 24 , 69 . 44
VHF / UHF Mobile	, 99 1-99 3-37 , 84 , 69 3-50 , 24 , 93 , 75 . 30 , 75 . 83 , 24 , 69 . 44 3-37
VHF / UHF Mobile	, 99 1-99 3-37 , 84 , 69 3-50 , 24 , 93 , 75 . 30 , 75 . 83 , 24 , 69 . 44 3-37
VHF / UHF Mobile	, 99 1-99 3-37 , 84 , 69 3-50 , 24 , 93 , 75 , 30 , 75 , 83 , 24 , 69 , 44 3-37 , 35
VHF / UHF Mobile	, 99 1-99 3-37 , 84 , 69 3-50 . 27 , 24 , 93 , 75 . 30 , 75 . 83 , 24 , 69 . 44 3-37 , 35 . 50
VHF / UHF Mobile	, 99 i-99 i-37 , 84 , 69 i-50 i-27 , 24 , 93 , 75 i-83 i-83 i-93
VHF / UHF Mobile	, 99 i-99 i-37 , 84 , 69 i-50 i-27 , 24 , 93 , 75 i-83 i-83 i-93
VHF / UHF Mobile	, 99 i-99 i-37 , 84 , 69 i-50 , 27 , 24 , 93 , 75 , 30 , 75 , 35 , 24 , 69 , 35 , 35 , 50 , 75 , 35 , 36 , 37 , 37 , 38 , 38
VHF / UHF Mobile	, 99 i-99 i-37 , 84 , 69 i-50 , 27 , 24 , 93 , 75 , 30 , 75 , 35 , 24 , 69 , 35 , 35 , 50 , 75 , 35 , 36 , 37 , 37 , 38 , 38
VHF / UHF Mobile       88-92, 94         Audio Solutions       11, 32, 36         Baluns / Loading Coils       77         Batteries       6, 9, 15, 24         Books, CDs, Magazines       Amateur         Amateur       30, 46         SWL / Scanners       20         Cloning / Programming       6, 9, 12         Coax       82-83         Connecting       30, 32         Packet / Data       9, 12, 30         Power       9, 12, 30         Rotator       6, 9, 12         Cases, Radio       6, 9, 12         Chargers       6, 9, 24         Clocks       20         Computer / Radio Interface 12, 30-32, 34, 36         Computer Software       20         Cloning / Programming       6, 9, 12, 23         Databases       9acket         Packet       30         Radio Control       6, 12, 31, 35         Scanner       5canner         Study aids       46         Connectors / Adapters       6, 9, 12,         35, 82-83, 93,	, 99 1-99 3-37 , 84 , 69 3-50 , 27 , 24 , 93 , 75 , 30 , 75 , 83 , 24 , 69 , 35 , 35 , 35 , 36 , 37 , 36 , 37 , 38 , 37 , 38 , 38
VHF / UHF Mobile       88-92, 94         Audio Solutions       11, 32, 36         Baluns / Loading Coils       77         Batteries       6, 9, 15, 24         Books, CDs, Magazines       Amateur         Amateur       30, 46         SWL / Scanners       20         Cloning / Programming       6, 9, 12         Coax       82-83         Connecting       30, 32         Packet / Data       9, 12, 30         Power       9, 12, 30         Rotator       6, 9, 12         Cases, Radio       6, 9, 12         Chargers       6, 9, 24         Clocks       20         Computer / Radio Interface 12, 30-32, 34, 36         Computer Software       20         Cloning / Programming       6, 9, 12, 23         Databases       9acket         Packet       30         Radio Control       6, 12, 31, 35         Scanner       5canner         Study aids       46         Connectors / Adapters       6, 9, 12,         35, 82-83, 93,	, 99 1-99 3-37 , 84 , 69 3-50 , 27 , 24 , 93 , 75 , 30 , 75 , 83 , 24 , 69 , 35 , 35 , 35 , 36 , 37 , 36 , 37 , 38 , 37 , 38 , 38
VHF / UHF Mobile       88-92, 94         Audio Solutions       11, 32, 36         Baluns / Loading Coils       77         Batteries       6, 9, 15, 24         Books, CDs, Magazines       Amateur         Amateur       30, 46         SWL / Scanners       SWL / Scanners         Cables       Cloning / Programming       6, 9, 12         Coax       82-83         Connecting       30, 32         Packet / Data       9, 12, 30         Power       9, 12, 30         Rotator       6, 9, 12         Cases, Radio       6, 9, 12         Chargers       6, 9, 24         Clocks       Computer / Radio Interface 12, 30-32, 34, 36         Computer Software       Cloning / Programming       6, 9, 12, 23         Databases       Packet       30         Radio Control       6, 12, 31, 35         Scanner       Study aids       46         Connectors / Adapters       6, 9, 12         35, 82-83, 93,       Dummy Loads       77, 84,	, 99 1-99 3-37 , 84 , 69 3-50 , 27 , 24 , 93 , 75 , 30 , 75 , 83 , 24 , 93 , 75 , 35 , 35 , 50 , 36 , 37 , 38 , 48 , 49 , 49 , 49 , 49 , 50 , 75 , 75
VHF / UHF Mobile       88-92, 94         Audio Solutions       11, 32, 36         Baluns / Loading Coils       77         Batteries       6, 9, 15, 24         Books, CDs, Magazines       Amateur         Amateur       30, 46         SWL / Scanners       SWL / Scanners         Cables       Cloning / Programming       6, 9, 12         Coax       82-83         Connecting       30, 32         Packet / Data       9, 12, 30         Rotator       6, 9, 12         Chargers       6, 9, 12         Chargers       6, 9, 24         Clocks       Computer / Radio Interface 12, 30-32, 34, 36         Computer Software       Cloning / Programming       6, 9, 12, 23         Databases       Packet       30         Radio Control       6, 12, 31, 35       Scanner         Study aids       46         Connectors / Adapters       6, 9, 12, 23         Dummy Loads       77, 84, Duplexers       92, 98,	, 99 J-99 J-37 , 84 , 69 J-50 , 24 , 93 , 75 , 30 , 75 , 35 , 24 , 69 , 44 J-37 , 35 , 27 , 36 , 27 , 36 , 37 , 36 , 37 , 37
VHF / UHF Mobile	, 99 J-37 , 84 , 69 J-50 J-27 , 24 , 93 , 75 , 35 , 24 , 69 J-37 , 35 , 24 , 35 , 35 , 35 , 36 , 37 , 36 , 37 , 37 , 38 , 37 , 38 , 38
VHF / UHF Mobile       88-92, 94         Audio Solutions       11, 32, 36         Baluns / Loading Coils       77         Batteries       6, 9, 15, 24         Books, CDs, Magazines       Amateur         Amateur       30, 46         SWL / Scanners       SWL / Scanners         Cables       Cloning / Programming       6, 9, 12         Coax       82-83         Connecting       30, 32         Packet / Data       9, 12, 30         Power       9, 12, 30         Rotator       6, 9, 12         Chargers       6, 9, 24         Clocks       Computer / Radio Interface 12, 30-32, 34, 36         Computer / Radio Interface 12, 30-32, 34, 36       Computer Software         Cloning / Programming       6, 9, 12, 23         Databases       30         Packet       30         Radio Control       6, 12, 31, 35         Scanner       35, 82-83, 93,         Dummy Loads       77, 84,         Duplexers       92, 98,         Email       sales@hamradio.c         Encoders / Decoders	, 99 J-37 , 84 , 69 J-50 , 24 , 93 , 75 , 35 , 36 , 35 , 36 , 35 , 35
VHF / UHF Mobile       88-92, 94         Audio Solutions       11, 32, 36         Baluns / Loading Coils       77         Batteries       6, 9, 15, 24         Books, CDs, Magazines       Amateur         Amateur       30, 46         SWL / Scanners       SWL / Scanners         Cables       Cloning / Programming       6, 9, 12         Coax       82-83         Connecting       30, 32         Packet / Data       9, 12, 30         Power       9, 12, 30         Rotator       6, 9, 12         Chargers       6, 9, 24         Clocks       6, 9, 24         Computer / Radio Interface 12, 30-32, 34, 36         Computer Software       Cloning / Programming       6, 9, 12, 23         Databases       30         Packet       30         Scanner       30         Study aids       46         Connectors / Adapters       6, 9, 12, 31, 35         Scanner       35, 82-83, 93, 35         Dummy Loads       77, 84, 34         Duplexers       92, 98, 38         Email       sales@hamradio.ce         Encoders / Decoders       Global Positioning Systems	, 99 J-37 , 84 , 69 J-50 , 24 , 93 , 75 , 30 , 75 , 30 , 35 , 50 J-31 , 36 , 27 , 48 , 49 , 35 , 36 , 36 , 37 , 36 , 36 , 37 , 36 , 36
VHF / UHF Mobile       88-92, 94         Audio Solutions       11, 32, 36         Baluns / Loading Coils       77         Batteries       6, 9, 15, 24         Books, CDs, Magazines       Amateur         Amateur       30, 46         SWL / Scanners       SWL / Scanners         Cables       Cloning / Programming       6, 9, 12         Coax       82-83         Connecting       30, 32         Packet / Data       9, 12, 30         Power       9, 12, 30         Rotator       6, 9, 12         Chargers       6, 9, 24         Clocks       Computer / Radio Interface 12, 30-32, 34, 36         Computer / Radio Interface 12, 30-32, 34, 36       Computer Software         Cloning / Programming       6, 9, 12, 23         Databases       30         Packet       30         Radio Control       6, 12, 31, 35         Scanner       35, 82-83, 93,         Dummy Loads       77, 84,         Duplexers       92, 98,         Email       sales@hamradio.c         Encoders / Decoders	, 99 J-37 , 84 , 69 J-50 , 24 , 93 , 75 , 30 , 75 , 30 , 35 , 50 J-31 , 36 , 27 , 48 , 49 , 39 , 45 , 101 , 101 , 26 , 27 , 36 , 27 , 36 , 27 , 36 , 36



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Hand / lapel 6, 9, 24, 38, 41
Morse Code Readers / Practice 43, 48
Mounts / Brackets
Equipment
Mobile Antennas
Noise Filters
Owl
Packet Controllers / TNC Units 15, 30-31, 36-37
Power Panels / Outlet Strips
Power Supplies
Radio Control
Radios, Amateur
Base 3, 7-8, 13-14, 16-19
Handheld 5-6, 9, 11, 15, 21-23
Mobile4, 8, 10, 13-14, 18-21
Radios, Specialty
Commercial5-6
Scanners
Short Wave Listening 3, 12, 25-26, 77
Software Defined
Rope83
Rotators 102-103
Soldering Equipment 69
Speakers 6, 9, 18, 24, 37, 41, 77
Store Locations112-113
Study Aids
Switches, Antenna
SWR / Watt Meters70-71, 77, 79
Towers
Weather Stations110
WiFi Connections
Wire
Worldwide Web http://www.hamradio.com
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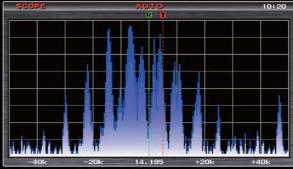
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